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LAS GUASIMAS.

BY LIEUTENANT-COLONEL S. T. NORVELL, U. S. ARMY.

THE following account of the battle of Las Guasimas was originally intended as a memorandum for the benefit of the writer, and not for publication, the idea being to have a record of the part taken by the regular cavalry. Upon consideration, the author deemed it best to offer it to the CAVALRY JOURNAL, as the record would be permanent.

The following is a list of officers and organizations of the regular army engaged in the battle of Las Guasimas, Cuba, June 24, 1898:

Major-General JOSEPH WHEELER, formerly Second Lieutenant Mounted Rifles.

Major W. D. BEACH, U. S. V. Engineer Officer, Captain Third U. S. Cavalry.

Brigadier-General S. B. M. YOUNG, Colonel Third U. S. Cavalry.

Captain A. L. MILLS, A. A. G., U. S. V., First Lieutenant First U. S. Cavalry.

First Lieutenant T. R. RIVERS, Third U. S. Cavalry, A. D. C.

Second Lieutenant W. R. SMEDBURG, Fourth U. S. Cavalry, A. D. C.

FIRST U. S. CAVALRY.

First Squadron, Major JAMES M. BELL, commanding. Troops A, B, G and K.

Captains.—ROBERT P. P. WAINWRIGHT, T. T. KNOX, JACOB G. GALBRAITH.

First Lieutenants.—GEORGE L. BYRAM, EDMUND S. WRIGHT.

Second Lieutenants.—WALTER M. WHITMAN, CHARLES MCK. SALTZMAN and HENRY C. SMITHER.

TENTH U. S. CAVALRY.

First Squadron, Major STEVENS T. NORVELL, commanding. Troops A, B, E and I.

Captains.—WILLIAM H. BECK, CHARLES G. AYRES, JAMES W. WATSON.

First Lieutenants.—RICHARD L. LIVERMORE, ROBERT J. FLEMING.

Second Lieutenants.—GEORGE VIDMER, ALEXANDER M. MILLER, HARRY O. WILLIARD and FRANK R. MCCOY.

MEDICAL DEPARTMENT.

First Lieutenant LEIGH A. FULLER, and Acting Assistant Surgeon DELGADO.

WITH FIRST U. S. VOLUNTEER CAVALRY.

Colonel LEONARD WOOD, Captain and Assistant Surgeon U. S. Army.

Captain LLOYD S. MCCORMICK, Seventh U. S. Cavalry.

Second Lieutenant ALLYN K. CAPRON, Seventh U. S. Cavalry, Captain U. S. Volunteer Cavalry.

Many acts of heroism were exhibited, but, except in a few instances, they are not mentioned, for the reason that where all did so well, the list would embrace everyone who took part in the battle. Every officer present, except Generals WHEELER and YOUNG, was recommended for a brevet, and that speaks for itself.

After an all night rain, at 4 o'clock A. M., on the 24th day of June, 1898, a force of cavalry consisting of four troops of the First, four troops of the Tenth, and eight troops of the First U. S. Volunteer Cavalry, was on the march to the front, on the road leading to Santiago. Each of the squadrons of the regular cavalry was under the command of a major—BELL and NORVELL, respectively; the First U. S. Volunteer Cavalry was under the command of its colonel—WOOD. These troops formed part of the Second Brigade of the Cavalry Division of the Fifth Army Corps, and were under the command of Brigadier-General S. B. M. YOUNG, whose rank was that of colonel of the Third U. S. Cavalry in the regular army, he being one of the volunteer general officers of the army of invasion.

These troops had landed from the transports on the afternoon of June 22d, and after proceeding about two or three miles inland, had bivouacked for the night. The next day, June 23d, under orders from General YOUNG, they moved forward to Siboney, some of the

troops not arriving until 10 o'clock at night, and by that time the rain was pouring down. Each trooper had with him just what he could carry in a blanket-roll; and was supposed to have in his haversack three days' rations. The fact was, many of them had not one day's rations; they simply would not carry them, and trusted to luck for something to eat in the future.

As the troops started on the march on the morning of the 24th, they were a sorry looking body of men: wet to the skin, with the water dripping off their clothing, hungry, and worn out for lack of sleep. Nevertheless, their spirits were irrepressible, as they chaffed one another on the subject of bringing up their horses, which were back in Tampa, and seeing that the animals were properly groomed and fed!

After marching about two miles, passing around LAWTON's division of infantry, fording a stream, and crossing a railroad track, the cavalry had the advance. Here, Generals WHEELER and YOUNG appeared, the latter assuming command, and directing the movements of the brigade. The First U. S. Volunteer Cavalry now left the column, taking a trail to the left, which ran parallel to and about eight hundred yards distant from the main road to Santiago, the First and Tenth U. S. Cavalry continuing on this latter road. The combined command numbered less than one thousand men, and the First and Tenth U. S. Cavalry, about four hundred and sixty. Attached to the Tenth were two Hotchkiss guns, manned by men of that regiment, and commanded by Captain JAMES W. WATSON.

After marching about two miles farther, the squadron of the First U. S. Cavalry having the advance, General YOUNG rode along the column to the front, remarking to the major of the Tenth as he passed: "Well, if the Spaniards don't run, we shall have some fun in a few minutes!" And this was the first intimation that the troops received that an immediate fight was contemplated. In fact, it was thought that General WHEELER only desired to get in the advance, so as not to be left out in case a battle took place. The Tenth Cavalry was now directed to halt for ten minutes, while the First went on. Soon the troops descended into a ravine, crossing a small stream at the bottom, then up a rise for about seventy-five yards, clearing the thick woods in the ravine. The First Cavalry, forming front into line, was deployed to the right and left of the road. This movement had not been completed, when the enemy, occupying a high ridge to the left and front, about eight hundred yards off, opened a heavy musketry fire. Knowing the country well, the Spaniards had the range accurately; but, fortunately, like all firing

down from a height, the balls at first passed over the heads of the United States troops. Taking advantage of this, the Hotchkiss guns were placed in position, and opened fire at once, shooting over the heads of the First Cavalry, the latter moving slowly but steadily forward, somewhat sheltered by the thick underbrush that covered the country. In the meantime, the firing of the enemy was becoming more and more accurate; men were falling, among them Captain KNOX and Lieutenant BYRAM, both of the same troop, and the only officers with it. The Tenth Cavalry, which had come up, was held in reserve for a few moments. Soon one troop (BECK's) was sent to support the left of the First Cavalry, and immediately afterwards two (WATSON's and WOODWARD's, commanded by Second Lieutenant WILLIARD and First Lieutenant FLEMING respectively) were moved forward to support the right. This left one troop of the Tenth in reserve, and to support the battery. Till the end of the fight, this formation remained the same. About this time, Major BELL was wounded; disabled men were coming back, giving exaggerated reports of the number killed; and, to add to the anxiety, nothing could be heard of the First U. S. Volunteer Cavalry, which should have arrived near enough to attack at the time the fight began. It was feared that the regiment had got off the right trail. The fire of the enemy became more intense; the Hotchkiss guns had to be run back for the protection of the men. For a few minutes, affairs looked anxious, and General YOUNG looked anxious. Suddenly a faint cheer was heard from the front and left. General YOUNG cried out to General WHEELER: "We've got 'em!" and then, "Bring up those Hotchkiss guns!" The guns, being put into position, again opened fire; the line of the First and Tenth Cavalry continued to advance. In two or three minutes more, the Spaniards were seen to run to the rear. Suddenly the firing ceased; the ground vacated by the Spaniards was occupied by troops of the First and Tenth Cavalry and First U. S. Volunteer Cavalry, and the battle was over.

The writer refrains from entering into the details of the operations of the First U. S. Volunteer Cavalry; he has confined himself to what he actually witnessed. It is sufficient to say that the regiment referred to was a little late in coming up, having a greater distance to march. It came upon the Spaniards suddenly, and this gave rise to reports that it had been "ambushed." This was untrue. Colonel WOOD knew the plan of the battle and what was in front of him, and when he came upon the enemy, he was prepared. He fought for some time before his right formed connection with the left of General YOUNG's line. If anyone was surprised, it was the

Spaniards, and they soon concluded that they were outflanked, and were being surrounded, and this caused them to "stampede."

At the very beginning of the fight, word was sent back to LAWTON's division to hurry up and come forward, as the size of the force encountered was not known for certain—the whole of the Spanish army might be present. As it turned out the enemy numbered about two thousand. By 9 o'clock A. M. the action was over. Afterwards, LAWTON's division began to arrive on the scene, headed by CHAFFEE's brigade, that officer leading. The whole of the Fifth Corps had been anxious to be present at the spilling of the first blood, so that those who were not engaged were very much disgusted, and evidently thought the fight was premature and unnecessary. Even the commanding general telegraphed the War Department at Washington that the fight at Las Guasimas was an "incident." Be that as it may, the "incident" had a marked effect upon future operations, and made the result at San Juan Hill possible. If the Spanish army ever had an idea of assuming the offensive, it was given up. To be sure, on the night of July 2d it made a demonstration upon our lines entrenched on San Juan Hill; it was a weak effort, and, subsequently, many thought it was only done to cover CERVERA's operations the next morning, which ended in the destruction of the Spanish fleet. But that, as KIPLING would say, "is another story."

It is a fact that the fight at Las Guasimas was regularly planned by Generals WHEELER and YOUNG on the night of June 23d. With one single exception it was carried out as planned. It was promised by General CASTILLO that a force of 300 Cubans would take the advance in the morning and develop the position of the enemy. When the time arrived, the Cuban troops failed to materialize. This was the only failure in the plan, and, likely, it was just as well they took no part in the action.

The cavalry engaged deserve great credit for their conduct; but three line officers in the command had ever before been in a battle, and it is safe to say that not an enlisted man had ever been in one, though some of them had been in Indian skirmishes. The majority of the regular officers were young men, who had scarcely ever heard a shot fired except in target practice. They led their men like veterans. Where all did so well, it is hardly proper to mention individual cases of bravery, but the writer cannot refrain from mentioning Captain KNOX and First Lieutenant BYRAM of the First U. S. Cavalry. The first remained some little time with his troop after receiving what was thought to be a mortal wound. Lieutenant BYRAM was shot in the head, and, after having his wound dressed,

went back to his troop; again he had to go to the rear to have his wound attended to, and again he returned to the front, where he fell in a faint.

Of the regular regiments represented, the First U. S. Cavalry met with the greatest loss, having had seven men killed and eight wounded. The Tenth lost one killed and ten wounded. The First U. S. Volunteer Cavalry had eight men killed and thirty-four wounded.

Of the Medical Department, First Lieutenant LEIGH A. FULLER, U. S. Army, was on duty with the Tenth Cavalry, and Acting Assistant Surgeon DELGARDO was on duty with the First. Both of these officers were under fire constantly during the fight, caring for the wounded, and, but for their attention, some would have died from the effects of their wounds.

Colonel ROOSEVELT has written a graphic description, published in the March number of *Scribner's Magazine* for 1899, of the part taken in the battle of Las Guasimas by the First U. S. Volunteer Cavalry; those interested would do well to read it.

It was the opinion of the writer at the time—June 24th—(and he was confirmed in that opinion subsequently) that had the Fifth Army Corps been prepared, it could have taken Santiago on the day of Las Guasimas by immediately following up that victory. The Spaniards, who were completely demoralized, expected the American army to do so, and if it had, the city would have been surrendered, and many lives saved. Unfortunately, not all of the Fifth Army Corps had been landed by the 24th of June. Between that day and July 1st the Spaniards had time to cool off, and go to digging and placing barbed wire for defense.

Brigadier-General YOUNG was made a Major-General of Volunteers for Las Guasimas, and deserved it, for not a man in the command was more gallant, or was more exposed to the fire of the enemy. That he was not killed was no fault of his; his "guardian angel" must have been present.

General WHEELER was constantly under fire, but refrained from interfering with General YOUNG. His only reward was that he added to a reputation already established.

MOUNTED CAVALRY IN THE SANTIAGO CAMPAIGN.

BY MAJOR HENRY T. ALLEN, U. S. VOLUNTEERS,
CAPTAIN SIXTH U. S. CAVALRY.

WHEN an army unaccustomed to mobilizing a greater force than a brigade, and this but seldom and under most favorable conditions of stored supplies and regulation camps, finds itself under way for foreign service, then nearly insuperable difficulties of various kinds present themselves. The transportation of foot troops alone from our most convenient southerly port to any point on the Cuban coast was a problem of no small order. The idea of shipping the available cavalry regiments as a mounted force was therefore given up in the proposed problem involved in the order to the Fifth Corps commander: "Go with your force to capture garrison at Santiago, and assist in capturing harbor and fleet." It does seem a little incongruous to speak of mounted troops in connection with the capture of a fleet.

Corps order, dated Tampa, Fla., May 31, 1898, comprised besides the infantry of the Fifth Corps in its normal status, the battalion of engineers, the detachment of the signal corps, twenty troops of cavalry, four batteries (sixteen guns) of light artillery, and two batteries of heavy artillery consisting of eight five-inch siege guns and eight field mortars.

This order contemplated the use of the cavalry as a mounted force, but it was subsequently modified so as to include forty-eight troops, all dismounted. As is well known, only two battalions (eight troops) of each regiment were taken, and the following regiments were represented: First, Third, Sixth, Ninth, Tenth, and First Volunteer Cavalry. The increase of dismounted cavalry caused the regular brigade of the corps commanded by Brigadier-General SNYDER to be left behind. Brigadier-General JOHN C. BATES had just arrived by sea from Mobile, Ala., with the Third and Twentieth Infantry regiments and one mounted squadron of

the Second Cavalry commanded by Lieutenant-Colonel WILLIAM A. RAFFERTY. The latter constituted the *entire mounted cavalry* of the Cuban expedition. For the benefit of the foreign readers of the JOURNAL, I would mention here that the American troop is the European squadron, and the American squadron is four troops.

General BATES's command was at once incorporated in the expeditionary force which was eventually fixed, and which amounted to 815 officers and 16,072 enlisted men. Of this force in round numbers of 16,000 men, somewhat less than 300 were mounted cavalry. The ration strength of the four troops did not average more than seventy men each. They were "A," "C," "D" and "F," commanded respectively by Captain THOMAS J. LEWIS, First Lieutenant WILLIAM F. CLARK, First Lieutenant HENRY T. ALLEN (Major A. A. G., U. S. V.) and Captain LLOYD M. BRETT. The names of the other officers of the troops will be seen throughout the report.

The loss of the horses to the cavalry division was a great blow, and one that required considerable effort to bring about resignation to such an unusual step. There can be no question now, and there were those who realized it at the time, that this measure was a great compliment to the mounted branch, which in a brilliant and effective way throughout the campaign, showed that it was worthy of it. From the results shown by the dismounted cavalry in Cuba, the government can well rest contented to expend considerable money upon a branch which shows its fitness to take the field in either capacity, mounted or on foot.*

If the Fifth Corps had taken a normal allowance of mounted cavalry, there would have been about four troops for each division, and at least twelve troops as corps cavalry. Our traditions and experiences from a war (1861-5) rich in military training and especially fruitful in cavalry results, would have dictated even more.

Besides limited transport facilities there was an equally good reason for radically reducing the mounted quota of the force, and that was the dearth of roads in general and of passable roads in particular. Dismounted troops experienced the greatest difficulty in moving away from them owing to the nearly impenetrable undergrowth. Cavalry found both undergrowth and overgrowth to entangle its movements. Near the town of Santiago there was some clearing and cultivation, but in the region north and west of Daiquiri and Siboney the comparatively few years of enforced non-

*Captain WATSON, Tenth Cavalry, commanded temporarily a battery of four Hotchkiss guns. Lieutenant HUGHES, same regiment, commanded Hotchkiss guns and a machine gun.

cultivation had, thanks to the tropical climate, produced a veritable jungle, where cavalry could not operate without cutting its way.

There is a third potent reason why a normal allowance of mounted cavalry should not have been taken, and that is, the campaign was, or should have been preëminently an artillery one. The enemy was in a strong position, doubly entrenched, and all military practice and precedence demanded that the offensive be strong in artillery. Had there been even a normal allowance of artillery the number of guns would have been not less than seventy-two, instead of sixteen. The campaign, by its very nature, cried out for artillery strength of unusual proportions, and doubtless were it to be repeated more field artillery would have been taken and some or all of the heavy pieces would have been brought up in spite of the roads.

I do not wish to say that a large force of mounted cavalry could not have been of great service during certain stages of the campaign, such for example, as in securing the right flank of our army against the Holquin and Caney troops (had Caney not been attacked), in preventing General ESCARIO's arrival by operating around the northern end of the bay, or in following up the retreat from Caney; I merely mean to say that under the circumstances of the campaign, the mounted force was justly very small.

In his account of the Guasimas engagement, General S. B. M. YOUNG reports: "Had I had at hand at the time of the assault a force of mounted cavalry, the fruits of our victory would have been more apparent." In my opinion, cavalry could have followed up the retreat from Guasimas, owing to the jungle nature of the country, with the greatest difficulty and only with the greatest precautions against ambush. A few men concealed in the brush along any of those so-called roads would have had immunity from mounted troops, and could have plucked off troopers nearly as fast as they could appear.

The small squadron of the Second Cavalry was therefore required to do duty in connection with the First Infantry Division (three brigades, nine regiments), commanded by Major-General J. F. KENT, the Second Infantry Division (same size), Major-General HENRY W. LAWTON, the Cavalry Division, two brigades (six regiments, twelve squadrons),* commanded by Major-General JOSEPH H. WHEELER, and the independent brigade of two regiments, commanded by Brigadier-General JOHN C. BATES. In this relation, I must express surprise at the conservative demands made by the several division

*Squadrons—battalions.

and brigade headquarters on this small cavalry force for orderly and other detached duty. All seemed to realize the paucity of the mounted men, and showed such a correspondingly just consideration of the necessities of the case, that for the most part the four troops had but few men detailed away longer than a day at a time from their commands. In a word, the history of our civil war had caused us to look upon the prospects with gloomy forebodings, which happily were not realized.

What, then, was the role of this small mounted force of four units, of which Lieutenant-Colonel RAFFERTY, in his report dated Santiago, July 31, 1898, says: "My squadron of Second Cavalry was placed under the immediate and direct orders of the commanding general of the Fifth Corps, this army * * *. Being the only mounted cavalry of the army, the foregoing duties were assigned it by the general."

This question is best answered by the official reports of the corps commander and the reports of the commanders of the respective troops, which in a large measure acted independently of the squadron organization.

Major-General WILLIAM R. SHAFTER reports: "I also desire to mention the squadron of the Second United States Cavalry, under Lieutenant-Colonel WILLIAM A. RAFFERTY, of that regiment. These four troops, under command of Captains BRETT and LEWIS, and Lieutenants ALLEN and CLARK, constituted the only mounted force of my command, and performed the most arduous and valuable services in escorting wagon and pack trains along dangerous sections of the road, and in furnishing escorts for light batteries in battle, and orderlies for my own and division headquarters. While the dense undergrowth which covered most of the country, prevented this squadron from performing some of the duties usually assigned to a mounted command, yet it performed an immense amount of labor, which was accomplished to my entire satisfaction. As separate organizations, these troops were present on various parts of the battlefields of July 1st, 2d and 3d, and conducted themselves most creditably, as did the troopers individually when carrying despatches under fire. I commend the squadron to the favorable consideration of my superiors."

With the exception of making a charge and of actually firing cannon I know of no military duties that this squadron did not at some stage of the campaign effectively undertake.

Before narrating the details of the duties that fell to the respective troops, it may be of interest to speak of the transportation of

the horses and the landing at Daiquiri.* The transports carrying animals were not only jammed with horses and mules, but the ventilation was inadequate. The heat and odors proceeding from their bodies were intense, and certain horses and mules were in a constant sweat night and day. This condition of affairs was cruelty to animals in a high degree, and necessitated frequent changes to bring the weaker ones to the hatchways and the better ventilated places. This with the stable cleaning gave the men occupation. Regular grooming was, on account of the crowded condition of the ship, entirely out of the question. When it is remembered that under these circumstances the horses had been shipped from Mobile to Tampa, at which place they were put in corral two days, and were then thirteen days on ship before the disembarkation at Daiquiri, June 24th, it is astonishing that only about two per cent. died. The absence of any landing facilities whatever for horses at the latter place is too well known. The system necessitated by the circumstances, of literally pitching the horses head first into the water a full half a mile from the shore, was also cruel in the extreme. A few of the weakest horses succumbed almost immediately upon striking the water; a few dropped upon reaching the shore. With what facilities the ships offered we constructed stage platforms and suspended one end from the side hatches, while the other end rested on the water. The horses were then brought to the hatches and by hand forced onto the stage, which, sinking, caused the animals to plunge head foremost into the water. Upon coming to the surface they were utterly dazed and without halter lines, held by men in row boats, they would just as frequently try to come back to the ship or go out to sea as to try for the land. The most tractable horses would not follow a leader. Even when led as close to the rocky, surging shore as safety for the row boats permitted, and were released, they would at times become frightened at the surf and head straight out to sea. Some of the row boats given our men were so heavy that untrained oarsmen could not overtake the frightened animals. Under these circumstances it is also surprising that only four to five per cent. were lost. In looking back at this experience, it is impossible to comprehend why suitable platforms or small scows were not made part of the materiale of each transport.

Had there been proper control exercised over the captains of the transports—specially true of the *Matteawan*—the unloading would have been effected a day earlier, and at a shorter distance from the

*Troops "D" and "F" were on the *Matteawan*, Troop "A" on the *Stillwater*, and Troop "C" on the *Morgan*.

shore. This would have avoided the necessity of putting the disembarked saddle kits of one troop (June 23d) on the horses of another whose saddles were still on board. It is not agreeable to speak of such matters, except in thinking that the truth may aid in future similar cases. The squadron was for the most part disembarked by the afternoon of the 24th, but with nothing more than field kits, and bivouacked on or near the shore. The same night it received instructions to draw three days' rations and fifty pounds of oats per horse, and proceed by troop as soon as ready the following morning. Troop "F" was to escort BEST's battery at the earliest possible moment that the latter could be ready. Troop "C" had marched on foot the 23d to Siboney, and back the 24th; Troop "A" did the same thing, partly mounted and partly dismounted.

The advance of the squadron on the 25th with fifty pounds of grain on each saddle meant leading the horses. The scene of the Guasimas engagement was passed, and camp made near headquarters of the dismounted cavalry. The following day the cavalry division and the mounted cavalry proceeded towards Santiago, and went into camp on a small tributary of the San Juan River, about five-and-a-half miles from the city, where the advance was delayed until June 30th. In the meantime no specific duties were allotted the squadron, though some of its officers were continually making reconnaissances towards Caney and towards Santiago in the direction of El Pozo.

The squadron had received instructions that it would be directly under the corps commander, and as the latter had not yet reached the front, no definite instructions were given it. In my opinion, the squadron (not through fault of its own) did not do its full duty during this halt, otherwise such a statement as the following could never have been officially made: "A few hundred yards before reaching the San Juan, the road forks, a fact that was discovered by Lieutenant-Colonel DERBY, of my staff, who had approached well to the front in a balloon." Could it be possible that the commander of the Cavalry Division and of the First Infantry Division had not, of their own initiative, ascertained that fact before their advance? It might be well to add here that, in the history of military balloons, the above mentioned incident is the first of its kind. Never before in war or maneuver has a balloon been put up in the firing lines of an attacking army within easy range of an enemy's guns.

Beginning with July 1st, and ending with the capitulation and concomitant events, the troops were oftentimes acting independently, and it is therefore necessary to write of each one separately. The

headquarters of the squadron moved to corps headquarters July 1st, where it continued to the end. The corps commander personally gave orders regarding the details of couriers, messengers, etc., sent from the squadron. In some cases when the communication to be delivered was written, he handed it in person to the courier rather than give it to the natural intermediary present, the courier's or detachment's commander.

TROOP "A."

Captain LEWIS; Second Lieutenant FRANCIS J. POPE; sixty-eight enlisted men; sixty-five horses.

July 1st.—Lieutenant POPE at 10 A. M. delivered a wagon load of artillery ammunition to GRIME's battery at El Pozo. About noon the troop was ordered to provost duty between corps headquarters and El Pozo. At 3 P. M. it escorted PARKHURST's battery to the front, and reported it to the commander of the cavalry division. In accomplishing this, it came specially within the zone of the falling Spanish bullets beyond the San Juan ford. General SUMNER, commanding the division at the time, ordered the battery into position to the left of BEST's battery, and the troop to dismount and act in conjunction with Troop "C" as support to the two batteries throughout the rest of the day. Both troops were subjected to small-arm fire directed against the batteries. It returned to El Pozo about 9 P. M., and at once started to the front again with GRIMES's battery, which it conducted to the artillery position. The return to corps headquarters was after midnight. The strain had been severe, but the men bore up well.

July 2d.—The troop was engaged from 3 A. M. until midnight in conveying wounded from the field hospital, about one mile south of Caney, to the division hospital at corps headquarters. About 4 P. M. a train of twenty wagons loaded with wounded was fired upon while being convoyed.

July 3d.—The troop proceeded to Siboney to escort Rear Admiral SAMPSON, but the latter, owing to the sortie of the Spanish fleet, was compelled to return, and the troop's mission was in vain. A detail from the troop was engaged all day in escorting wounded to Siboney.

July 4th.—Was occupied in searching the battlefield for dead and wounded, and in orderly service.

July 5th to 8th.—The duties were chiefly confined to reconnoitering parties and orderly service.

July 9th and 10th.—In charge at Caney, maintaining order and distributing rations to the refugees assembled there. The troop

escorted General MILES during his stay in Cuba, participated in the formal surrender of Santiago, hoisted the flag on Morro Castle (Lieutenant POPE, Sergeant WELSH,) and together with "C" Troop (both commanded by Captain LEWIS) formed an escort for the commissioners designated by Generals SHAFTER and TORAL to receive the surrender of about 2,000 Spanish troops at the garrisons, El Cristo, Moron, Dos Caminos, San Luis and Palma Soriano. The troop proceeded on the 23d to Palma, where it remained until July 31st for the purpose of maintaining order.

TROOP "C."

First Lieutenant, WM. F. CLARK; Second Lieutenant, JOHN B. CHRISTIAN; seventy-one men; sixty-six horses.

July 1st.—The troop reported to the corps adjutant-general at El Pozo at 8 A. M., and was ordered to take station at the crossing about 250 yards to the right of GRIMES's battery. It was employed in doing courier service, escorting ammunition trains (Lieutenant CHRISTIAN) to firing lines, and gathering up stragglers. About 2 P. M. the troop commander was directed to escort BEST's battery toward San Juan, where it was dismounted as a support while the battery was in action. The Spanish small-arms fire having become too strong, the battery was withdrawn to Kettle Hill, where the escort remained all night on outpost duty. The rest of the troop excepting a few orderlies reached camp after dark, and after having assisted in constructing shelter for the wounded, was compelled to leave for Siboney as escort to a train of wounded. The work was principally between El Pozo and the front, namely, near San Juan ford and hill, where there was a continuous rain of bullets. In spite of this fact Lieutenant CLARK reports that whenever a courier was selected the others seemed to be disappointed that they were not chosen. Casualties during the day: one horse killed and one wounded. It was such work as this that brought forth the remark: "At all hours I met with fatigued troopers urging on their wearied horses in seeking the objects of their errands in almost inconceivable places, owing to the unknown condition of the country."

July 2d.—The outpost was withdrawn at daybreak, and at 7 A. M. accompanied the battery back to El Pozo; thence to camp to secure food and rest for both men and horses. In the afternoon 154 prisoners were conducted to Siboney and turned over to General DUFFIELD.

July 3d.—The troop was engaged in hunting sharpshooters and in courier service.

July 4th.—The troop made a very difficult journey, scouting through the jungle from the main road to Siboney and the coast. The day was very hot, and the growth in places so thick that the trail had to be literally cut through. As a result of this trip the sick list was enormously increased; by July 6th it was fifty per cent. of the total strength.

From the 4th to the 13th the troop was kept at headquarters doing courier service. On the 14th it made a reconnaissance towards Cabanas to determine whether supplies could be brought up from that side. It participated in the formal surrender and flag raising, and assisted in disarming the Spanish troops at San Luis, where it remained until August 5th. The work of the troop at this place was important and delicate. The commandant of the garrison refused to surrender it on a written order from General TORAL, delivered by one of his staff officers, until he had sent a commission to Santiago to verify the order. The delivery of the 600 stand of arms by the Spanish soldiers was rendered difficult by the presence of several bands of armed Cubans, about one hundred in all. In the task of maintaining order, guarding property, settling disputes, checking arms and equipments, much responsible work fell also to the enlisted men, who acquitted themselves with much credit.

When the troop left Cuba, August 22d, First Sergeant BLAKE was the only man who had not been on the sick-report with fever.

TROOP "D."

First Lieutenant, H. T. ALLEN; Second Lieutenant, E. M. LEARY; Second Lieutenant, M. E. HANNA; sixty-nine men; sixty-seven horses.

Lieutenant HANNA was detailed squadron adjutant, commissary and quartermaster, and was not, therefore, directly connected with the troop, but the squadron commander has commended him in most favorable terms.

Troop "D" left camp on the afternoon of June 30th with orders to report to General LAWTON, and was by him assigned, with two battalions of the First Infantry, to escort CAPRON's battery to its position, about twenty-four hundred yards from the Stone Fort at Caney. It bivouacked that night to the south of the battery, and was ready for orders the following morning long before the battles of San Juan and Caney were opened by the first shot from this position, fired under the supervision of the division commander at 6:30 A. M. General LAWTON remained near the battery until 10

A. M., sending frequent detachments from the troop to carry messages between him and the brigade commanders. Some of these detachments were accompanied by Lieutenant LEARY, others by staff officers (WEBB, CARBAUGH, and others). This often brought them under the fire of the enemy, but every detachment sent out executed its task successfully and punctually. About 10 A. M. the division commander proceeded to the Ducoureau House, and thence towards the firing lines to the south and east of Caney. He was accompanied by the troop, and this was the first time that it as a whole had been under fire. For a moment the ordeal was crucial; but the first sensations quickly disappeared. The fire was, however, so hot that while waiting the troop was dismounted to fight on foot. The sound of the Mausers was very deceptive, for the trenches were farther away than first supposed, and the undergrowth so thick that the enemy could not be seen; the troop was therefore mounted, and proceeded along the road with General LAWTON towards LUDLOW's brigade, now the central one of the division. Again it was under fire, and was directed by the division commander to halt, while he continued towards the northeast. Upon his return, the troop joined him and returned to the battery.

About 3 P. M. the troop again escorted General LAWTON to the firing lines, where it remained until the final assault upon El Caney, at 4:30 P. M. At this hour it advanced to the Stone Fort, and in conjunction with Captain R. K. EVANS's company of the Twelfth Infantry, CHAFFEE's brigade, set about collecting the prisoners from the town, and burying the Spanish dead in their own trenches. The block houses still contained a few Spanish soldiers, and desultory shots continued to be fired. There was much difficulty in persuading them to come out of their places of concealment, and that their lives would be spared. First Sergeant BHEGNATO, with about fifteen men, went through the town, and after examining the houses in detail, reported 225 to 235 wounded soldiers, and others retreating along the northern road to Santiago. In the meantime we had buried nearly thirty Spanish soldiers in the trenches. Therefore of the 600 defenders of Caney, about forty-five per cent. had been wounded and killed, including General VARA DEL REY.

During the fight about half the non-combatant population (250) fled to the mountains near by; the other half remained in the village. Of the latter, only one person was killed—a woman, who lying on the floor of her house, was shot through the abdomen. In view of the fact that four brigades had been firing at and towards the town a good part of the day, this is quite remarkable.

As soon as this work was finished—about 7 P. M.—the troop started for the artillery position to bivouac, but on the way was called back by General LAWTON, who was in the act of assembling his division in order to make contact with General WHEELER's right.

Numerous small detachments were sent here and there carrying orders to effect the above. Upon arrival near the Ducoureau House, where the Santiago-Caney highway is joined by the road leading to the artillery position, it was learned that the head of the leading brigade was fired upon by the Spaniards. The entire column was halted, and went into bivouac. Various messenger detachments were sent out from the troop to corps headquarters, BATES's brigade, and elsewhere.

July 2d.—At 2:30 A. M. the entire division was ordered to join the other two by a retrograde detour via corps headquarters and Pozo. It fell to Troop "D" to head this march. By 6 A. M. we were at Pozo, where the terrible losses at San Juan were first learned. Between these last named places but one line of communication was used, and this, as previously stated, through a decidedly hot zone of Spanish bullets. Along this road two troop horses were wounded while detachments were hunting Spanish sharpshooters remaining within our lines. One of the detachments (DEBUSSERE) reported success in shooting one man out of a tree. About 9:30 A. M. the troop began to conduct a Cuban regiment up to the firing lines between General WHEELER's right and LAWTON's left. Owing to the peculiar condition of mind of this regiment, the task was not an easy or quick one. Upon completion of this, the troop joined General LAWTON, who had selected for his headquarters a position in rear of his center on the San Juan River. It bivouacked in the only near available place, over which the bullets whistled the rest of the afternoon. The orderly of the troop commander was slightly wounded in the head by one of these missiles. Fifteen men volunteered to go into the trenches on the hill above, with First Sergeant BHEGNATO in charge.

During the counter attack of the Spanish at 10 P. M., Lieutenant LEARY, sent to the trenches to ascertain the morale of our troops, reported them eager to have the enemy advance. This was as it should have been, in spite of the tension of the preceding forty-eight hours. How could it be possible for a defensive foe continually retreating to force the lines of an aggressive offensive enemy that had succeeded in intrenching itself? In view of the discussion that has taken place concerning the night of July 2d, I make special mention of the above.

On the morning of July 3d, the troop commander with a small detachment accompanied Generals LAWTON and CASTILLO towards General GARCIA's headquarters, above the northern end of the bay. From a high point we saw Admiral CERVERA's fleet in the harbor at 9:15 A. M. Within thirty minutes of this time, while still with General GARCIA, Cuban messengers announced that the fleet had gone out and that the great naval battle was on. Under instructions from General LAWTON, I proceeded directly to report this circumstance to General SHAFTER, who, like many others, was much astonished at the news. While at corps headquarters I received orders to conduct CAPRON's battery to the right flank. The troop repaired the road for the battery and assisted it later in digging gun pits. Both went into bivouac in the meadow in front of Santa Cruz. In the afternoon, the troop commander endeavored to show the chief of artillery position for his batteries.

July 4th.—Detachments were sent on various duties in many directions; with a small one I made a reconnaissance of the position of guns and trenches on the north and east of Santiago; Lieutenant LEARY with a larger one reported to General LAWTON.

July 5th and 6th.—The duties of the troop had become very general; it was becoming permanently identified with the right flank; it helped CAPRON's battery in various ways; it maintained communication between division and corps headquarters, and between the former and the other brigade headquarters; it exercised a mild supervision over the refugees who passed its bivouac the 5th; was ordered to report upon the situation at Caney; and made frequent reconnaissances, which were duly reported.

July 7th.—Ordered to corps headquarters.

July 8th.—Ordered to relieve Captain FINLEY at Caney.

July 9th.—Relieved by Troop "A." Conducted eleven wagons of provisions to Caney from corps headquarters same night, and upon returning received the following order:

HEADQUARTERS FIFTH ARMY CORPS,
CAMP NEAR SANTIAGO, CUBA, July 10, 1898.

Captain H. T. Allen, Second U. S. Cavalry:

SIR:—The commanding general directs that you proceed with your troop to El Caney, relieving Captain LEWIS, and take full charge of the town for the purpose of distributing food and policing the place. Very respectfully,

[Signed.]

E. J. McCLEARNAND,
Assistant Adjutant General.

The troop commander recommended in vain the sending of a battalion of infantry. In an hour troop headquarters started for Caney, where they remained until the surrender and return of the refugees. Within the confines of a compact little village of a normal population of 500, were 20,000 people depending upon supplies furnished by the government and the Red Cross Society. The distressing situation has been frequently and graphically described, yet it is doubtful whether all these pictures give a true idea of the suffering, and whether the difficulty of the task falling to Troop "D" is fully understood. The assistance rendered by foreign consuls, who constituted an advisory council, was of the utmost importance. Each of these was surrounded by a relatively large following of his compatriots, the French consul having the largest number, about 650. The advisory council selected an executive committee of five influential Santiaguans, who had plenty of good will, but who were literally overpowered by the enormity of the situation. This committee selected the police force, which was given over to Lieutenant LEARY, while Dr. MENOCAL was entrusted with matters of a purely sanitary nature, and with the medical service. There was so much to be done, that these officers, as well as the hospital stewards, and every member of the troop who was able to stand up, worked almost incessantly.

July 11th.—A shell from the Spanish guns exploded within a hundred yards of the church, the administration headquarters. The quantity of food issued daily was about 4,000 to 5,000 rations that had to be distributed to 20,000 people, many of whom were daily growing weaker. By July 12th, ten members of the troop were on their backs with the "acclimatizing fever," while many others were very weak. With the limited number available for service and the many duties devolving upon it, the troop was entirely unequal to the task of preventing bathing and washing clothes in the tributaries of the San Juan on either side of the town.

The following note from the corps commissary gives an idea of the difficulty in complying with the requests for more rations:

"I send you, by General SHAFTER's order, thirty sacks flour, eight sacks beans, two sacks coffee, and ten sides bacon. It is all I can rake up, and this is sent at the expense of the Cuban army, General SHAFTER thinking the people at Caney need it most."

The long delay in bringing the surrender to a conclusion was very trying to the refugees, whose limited reserve supplies were gone and whose strength was fast failing. The situation had become

desperate in the extreme, and many of the best people, in their starving condition, were ready to risk anything.

The following communication was received with as much relief by the troop as by the refugees:

July 16, 1898, 7:30 A. M.

Major Allen:

The enemy has just surrendered. We are sending you a good quantity of rations—more than at any previous time. Those refugees who do not care to wait for them, can return at once to Santiago, although the General thinks it would be better for them to wait until afternoon. Use your judgment.

Very respectfully,

[Signed]

E. J. McCLEARNAND,
Assistant Adjutant General.

The return began in the afternoon of the 16th, and was practically ended on the following morning, early. The number of cases of fever in the troop was increasing, although some had apparently recovered. I was taken sick in the afternoon of the 16th, Lieutenant LEARY the 17th, and Dr. MENOCOL (a Cuban supposed to be an *immune*) on the 18th.

July 24th.—The troop was turned over to Lieutenant LEARY, who has officially reported its operations during the campaign. In a communication of the corps commander relating to the situation at Caney, the following occurs:

"It was impossible for us to issue sufficient rations to satisfy their hunger, although enough was supplied to sustain life. The suffering was intense, and the clamor of the people for food and their struggles to possess it as it arrived from day to day, was something difficult to describe. In all this trying work, Lieutenant ALLEN and the men under him did excellent service, not only in controlling these people and distributing food to them, but in insisting upon and carrying out the necessary police regulations. I especially commend them for their work."

TROOP "F."

Captain, L. M. BRETT; Second Lieutenant, S. M. KOCHERSPERGER. Men and horses in about the same numbers as the other troops.

This troop, like "A" and "C," broke camp at 3 A. M. July 1st, and marched to corps headquarters. In the early period of the firing on Caney, Captain BRETT with a detachment was ordered to make his way to General LAWTON, and deliver a message involving the participation of the independent brigade. Upon his return to corps

headquarters he was immediately ordered with his detachment to escort to General LAWTON's division a supply of artillery and infantry ammunition, after which he remained with the said general until the fall of Caney. The rest of the troop (under Lieutenant KOCHERSPERGER) had been doing courier service on different parts of the field, and escorting ammunition wagons to the front. The troop was occupied the entire night in carrying wounded, providing shelter, cooking and distributing food, and in various ways aiding the surgeons in their overpowering tasks.

On July 2d, the troop was saddled at 4:30 A. M., and escorted corps headquarters to El Pozo, whence it sent out couriers in all directions; it performed provost duty on the line of communication until about 10 P. M., when it returned to camp. From this time on until it left Cuba, it continued to render various and important duties, among which was arduous courier service and provost duty at corps headquarters. Owing to the severe sickness of the squadron commander, Captain BRETT temporarily succeeded him, and was later officially designated as Provost Marshal. Troop "F" took a prominent part in the formalities connected with the surrender and the flag raising. When it arrived at Montauk Point, there were not more than five men fit for duty. The horses too showed the severe strains connected with the excessive escort, courier and provost services during the campaign.

Lieutenant-Colonel RAFFERTY commended the work of the squadron surgeon, Acting Assistant Surgeon ARTHUR JORDAN, in high terms. The latter volunteered his services for the large hospital at corps headquarters during the pressing period of surgical work.

From the foregoing, it is seen that the administrative work done by the squadron during the critical time of the campaign, as well as after the cessation of hostilities, was fully as important as the purely military duties. Certain officers and men have received by name special commendations, but I feel persuaded that every officer, and practically every man, was from the beginning intent upon doing his full duty, resolved to take every risk possible, and secure for the little mounted command as much glory as possible. It has, however, always been a source of regret to all of us that we could not have had the experience and sensation of a charge against anything. That comparatively few men and horses were wounded is the result of good luck rather than want of exposure to hostile bullets.

A VOLUNTEER CAVALRY REGIMENT.

BY FIRST LIEUTENANT JAMES G. HARBORD, TENTH CAVALRY.

THREE cavalry regiments were organized for the war with Spain, under a provision of Congress authorizing the Secretary of War under the direction of the President to raise regiments from the nation at large, of certain men of special qualifications as scouts, shots and horsemen. The three gentlemen who became colonels respectively, of the First, Second and Third U. S. Volunteer Cavalry, were LEONARD WOOD, JAY L. TORREY and M. C. GRIGGSBY. But one of these regiments, the First, ever reached the war. But both the others were ready to go; and of the process of getting the Second ready I write.

The field of recruitment assigned to Colonel TORREY was Idaho, Utah, Nevada, Colorado and Wyoming—the very hub of the cattle and horse handling district of the Rocky Mountain region. Colonel TORREY himself was a lawyer by profession, a successful one, but also owner of the Em-bar Cattle Company, the biggest stock ranch in the Big Horn Basin or in all Wyoming. He had a wide reputation as a liberal employer to his cow-men, was a skillful politician and a gentleman of oratorical ability and persuasive magnetism. At a time when all States but one were clamoring for a chance to send more volunteers than the quota allowed by the proclamation, the extra regiment to this thinly settled Western region was a matter of eager interest to its members of Congress. It was apportioned one troop each to Idaho, Utah, Nevada, two to Colorado and seven to Wyoming. This gave it the backing of ten Senators and six Representatives ready from its birth to its muster out to help it all they could. Mr. TORREY's first act when designated to raise the Second Regiment was to go to the War Department and borrow the services of several young men to help him list the supplies he wanted; to arrange for the filling of his requisitions; to get his horse board de-

tailed and in motion; to work the wires and set things up for the future regiment. He had already decided in his own mind that the basis of the raising of the troops in his own State of Wyoming would be on the vote by precincts at the Presidential election of 1896. A man in each locality was designated by him to take the enrollment, with a limit assigned him as to numbers, for from first to last men had to be turned away instead of sought, for recruits. In the other States the apportionment was arranged to the satisfaction of the backers. The troops from Colorado were mustered in direct from the National Guard of that State before they joined the remainder of the regiment.

Colonel TORREY arrived at Cheyenne May 9th. That week was spent in revising requisitions by telegraph; hurrying cars of supplies along by judicious use of "pull." The typewriter, the stenographer, and the official telegraph book had always a prominent place in the life of the Second Regiment. Tabulated statements showing embarking points for the various detachments, railroads on which they would travel, hours of departure of trains, changes of cars to make, and hour and date of arrival in Cheyenne were made and mailed to each man named to enroll a detachment. Each interested railroad was furnished a copy, and the general passenger agents wired to furnish tickets required by each detachment sending the items to the quartermaster for the mustering officer to be afterward covered by the issue of transportation requests. Special trains were to be made up where the size of the party justified it, and the whole schedule was timed so that the men arrived no faster than they could be handled. Each man in charge of a detachment had been sent a circular letter with clear instructions as to purchase of meals or lodgings en route, method of giving receipts, taking duplicate bills, etc. And it worked well. Permission was secured from the War Department to use the post of Fort D. A. Russell, then garrisoned by only a detachment of the Eighth Infantry. The switching facilities of the Cheyenne & Northern Railroad from Cheyenne to Fort Russell were secured, and all recruits arriving in Cheyenne were promptly switched out under the direction of some one appointed to meet them. Mr. TORREY and his clerks, the quartermaster to the mustering officer, and the examining surgeon were ready to do business at Fort Russell on the morning of the 17th of May. So, too, was the only officer to whom an appointment in the regiment had been promised, Dr. MORTIMER JESURUN, of Douglass, Wyoming, destined for major and surgeon. The afternoon of the 18th troops arrived from Nevada and Utah, each eighty-four strong,

three officers and eighty-one men being the maximum allowed to a troop of the regiment.

So far the regiment had an existence only in the well organized mind of Mr. TORREY, and in the fact that he had been designated to raise the regiment. But such is the power of a requisition backed by a squad of senators, that when the first troops came in on May 18th, two car loads of quartermaster supplies, comprising complete clothing equipment for a thousand men, cooking utensils, letter books, stationery, horseshoes, etc., including standards and guidons for this theoretical regiment, were standing on the side-track at Fort Russell, consigned to the "Quartermaster Second U. S. Volunteer Cavalry," who was still punching cattle on the plains, without dreaming that he was to be quartermaster. Regular officers may well admire a system which presents to them a hedge of difficulties in equipping men even in time of peace, and yet will consign thousands of dollars of fine equipment to a far Western station to an officer not yet in service, in response to a requisition signed by a civilian, but backed by ten Senators who "fell in" long before the regiment ever did. And the ordnance, complete from magazine patterns to spur straps was already on its way and arrived within the week. Nor was the Adjutant General's office behind, for each troop as it was mustered in was issued all the necessary books, descriptive, sick, morning report, company council and otherwise. Nor were the cook-books of the Subsistence Department wanting for issue. Between May 18th and May 30th all the troops were mustered in. The civilian who had worked the wires for this lightning organization was wearing the eagles of a colonel, with a whole regiment behind him in twelve days from the time he drove into the post. Troops had come hundreds of miles, had been examined, the rejected ones eliminated, officers elected and sworn in, uniformed, equipped, submitting the usual reports and ready for the "usual monthly muster for pay" on May 30th. Troops were occupying the barracks and utilizing the mess furniture left behind by the Eighth Infantry. The post commissary was issuing rations regularly to them. They were drilling seven and eight hours a day. The method of choosing officers had been by election for the troop and part of the field officers. But it was a controlled election, where fermentation for days had evolved a unanimity of sentiment among each eighty-one men as to whom they wanted for officers. After the manner of the wild West, numbers had produced organization. No election was ever held in the regiment that was not finally a unanimous one. Through the lifetime of the regiment all great questions of its

policy were backed by a vote and a united sentiment—a bad system, but handled by a politician who knew his business. I believe no regiment ever enrolled a better personnel. The bad man of the woolly West had no place in it. To make a reputation for its section was a part of the purpose of its organization. There was no man in it who had not at some time ridden a range; none who were not more or less familiar with firearms; not one who, when given a blanket and a vacant space on the floor, failed to know the expected combination. It was a thousand fine physiqués. A thousand plainsmen with the breadth of chest and the heart action that comes from life in high altitudes. No man over forty-five rode with the regiment, and no man who was not a Western man by birth or adoption.

The arms of the regiment were the Krag-Jorgenson carbine and the Colt's forty-five, short model. Colonel TORREY did not believe in the saber, and his views prevailed at Washington. The plan for instruction which prevailed till the regiment was ordered South, involved work as follows: From 7:30 to 8:30 A. M., drill for the officers in a place unobserved by the men; from 8:30 to 9:30, drill for the men in the things had by the officers in the previous hour; 9:30 to 10:30, more drill for officers, and from 10:30 to 11:30, another drill for the troops. In the afternoon four more hours were spent in the same way. But in spite of this rather severe program the enthusiasm was so great that much volunteer drilling was done out of hours.

Before any troops arrived to be sworn in, the Horse Board had the mount for the regiment arriving, consigned to the quartermaster for the mustering officer, and when the regiment was mustered in, over half the horses were on the picket line at Fort Russell. Acting under a special authority which enabled them to vary slightly from the regulation standard for size, the Board bought many horses from enlisted men of the regiment, thus giving them mounts for which they already felt affection, and leaving a "bounty" in the homes from which the volunteers came. Stable duty began at once, likewise herding and herd guard and night guard on the picket lines. The veterinarian had arrived from the East, and when the horses suffered the usual complaints for new horses, the farriers had a prompt instructor. Regular police and fatigue details were run in the post.

One vacant set of quarters was utilized as an officers' mess, and the whole commissioned strength met for meals together. It was a pleasure in the first days of the regiment to see the lines

lengthen at the table from day to day as new men were commissioned. There were lines of square chins, of eyes that looked straight into yours, of good strong noses. Local interest in the regiment was intense. Almost every man in public life in the great Rocky Mountain region was represented in it. Governors of States were interested, telegraphing, visiting. A Senator of Wyoming was on the ground ready to burn the wires to Washington in its behalf. Senators of Colorado, Idaho and Utah were handling the Washington end of the line. Very little that the colonel asked in those days was refused.

June 22d the regiment started for Jacksonville, Florida, to report to General LEE. Hopes ran high; men and officers were alike enthusiastic, and considering its short life, the regiment was well instructed. On the way South, the schools for officers and non-commissioned officers continued while on train. The trip was well arranged. The horses were unloaded four times, and thoroughly groomed, and rested each time. A bad wreck occurred at Tupelo, Mississippi, six men being killed, and forty or fifty wounded. Perhaps nothing illustrates the variety of talent in the organization than the competency of locomotive engineers among them to examine the wrecked engines after the accident, to determine blame, and of a board of lawyers, who compiled and presented the claims of every man who felt a pain or lost a cent that night. Over the stories of that wreck one might laugh one moment, and cry the next. A trooper, in a forage car, made report: "The first shock," he said, "I hit the end of the car with my face. The second shock the end of the car went out." The uninjured were quick to the rescue. One ran and looked under an upset car. A uniform was in sight, but motionless and out of reach. The men dug a trench, and reached him, dragging him out, supposing him dead. He opened his eyes, got on his feet, felt himself over for troubles, shook himself, and remarked: "H—! Never touched me!" Another was brought out with arms and legs crushed. Nothing could be done. Men of the troop stood, and looked silently down. The trooper opened his eyes and looked up at them. "Here, one of you fellows roll me a cigarette," he said. It was rolled, and placed between his teeth, and lighted. When it went out, the soldier's life had gone too.

At Jacksonville the regiment constituted the only cavalry of the Seventh Army Corps while there. "They also serve who only stand and wait." And there the regiment stood and waited for the rest of its life. It won many high eulogies from officers who know what cavalry should be, and what volunteers are. Three or four hours

of hard mounted drill daily made it accurate in evolution, military in appearance, brought the flopping arms of the cow-man to his side and taught them to value a McClellan saddle. The drill grounds were two and three miles from the camp, at Panama Park, and advance and rear guard drills were constant on the way in and out. The drills were entirely under the squadron commanders, each major dividing the time between squad, troop and squadron drill as his judgment dictated. The entire regiment had target practice, pistol and carbine. Stable duty was conscientiously performed. Guard duty was well done with mounted guard mounting. A regimental canteen, which had the custom of several other regiments whose colonels were troubled with scruples against canteens, cleared \$1,300 the first month of its existence.

But the Second Volunteer Cavalry had come from the Northwest, where the air was bracing and cool, to fight. They enlisted to go to war, and the months of weary waiting in a Florida forest brought sickness. Fevers decimated the ranks till troops had scarcely ten per cent. for duty. Men and officers lost heart in waiting. On October 24th the regiment was mustered out. Its life was so uneventful as hardly to justify a mention, except as it shows the quickness with which a regiment can reach a certain state of preparedness, and illustrates the good and evil that come from "pull." Its perfect equipment, the facility with which it obtained its wants were the result of politics well applied. All that was faulty and bad, inequalities of promotion that made junior lieutenants and sergeants jump their seniors, perhaps even the quick mustering out of the regiment, were the result of politics that looked forward to the future of the regiment, not as soldiers, but as citizens. The striking and picturesque were never lacking in the regiment. Each individual was a strong, self-reliant unit. The cavalry idea was strongly developed. The regiment had a chance to go to the Orient dismounted, but declined, hoping for Cuba or Porto Rico with the horses, one officer remarking, "I'm a pretty good man on a horse, but I'm sure harmless afoot."

The regiment saw no Spaniards. The war ended too soon for that. It scattered to a thousand homes in the Rocky Mountains. Some have found commissions in the later volunteers for the Philippines—some have enlisted. But all, as far as in them lay, justified their organization and worthily represented the best type of the strength and manhood that has won the West for the world.

THE ARTILLERY OF 1861 AND 1899.*

BY LIEUTENANT-COLONEL EDWARD F. BROWN, LATE OF FIRST REGIMENT, U. S. COLORED
HEAVY ARTILLERY.

DURING the War of 1861 to 1865 I chanced to follow or lead batteries that handled about every kind of field or siege artillery used in the Western armies at that time. In fact, in the spring of 1866, I was practically responsible for artillery by the acre, and was in command of several different forts that carried an assortment of artillery seldom now found together.

I find that in my old quarterly ordnance reports in 1865 and 1866, that there were seven different kinds of bronze smooth-bore field guns, three different kinds of iron rifled field pieces, three kinds of steel rifled field pieces, and five kinds of rifled bronze field pieces, and the Whitworth guns in addition. In siege artillery we had seventeen different patterns of cast iron smooth-bore guns, ranging from the little 12-pounder to the enormous 20-inch Rodman. We had eleven different kinds of siege or seacoast defense mortars. Before the close of the war we had fourteen different kinds of rifled siege artillery, ranging from 12-pounders on up to the 12-inch Rodman in one class; and from 20-pounders on up to 300-pounders in PARROTT's patent.

You can therefore readily see that a description of these various kinds of guns would be monotonous.

If such a description would be dreary, I find that it would take a book instead of a reasonably lengthy paper to give details regarding our present siege and coast defense artillery, although I must say that our field artillery equipment of to-day could be described in a very short paper. I will not attempt details, but I will call

*Read before the Colorado Commandery of the Loyal Legion, Denver, Colorado. Although dealing exclusively with artillery, the subject is one of such general interest, especially to officers who served in the Santiago campaign, that it has gladly been given a place in the JOURNAL.—[EDITOR.]

attention to some matters that must have impressed themselves on every old artilleryman present.

Let us remember that in 1861 all of our artillery were muzzle-loaders, and a great majority of the guns were smooth-bores, and at that time they were constructed of bronze or cast iron. During that war was the first introduction of steel in the manufacture of artillery, and before 1865 we had a great many 3-inch steel regulation guns, and more 6-pounder and 12-pounder "Waird" guns in the field artillery. These were the only steel guns that got into service prior to 1865.

To my mind the most effective field gun during the War of 1861 to 1865, was the 12-pounder Napoleon, a smooth-bore, made of brass. While its extreme range was but 1,680 yards, it was a most terribly effective weapon with spherical case at a distance of 1,000 yards or under, and an absolute destroyer of men with cannister at under 400 yards.

In my handling of the rifled pieces that were furnished, I thought that the three-inch steel and the "Waird" guns were excellent for solid shot or shell, but I never was satisfied with their execution with shrapnel. The Parrott guns (an iron gun) that used only Parrott's projectile never impressed me favorably, from the fact that I was convinced that the projectile was not well balanced. At long ranges, when the angle of flight turned downward, about one shell in three or five would commence to turn somersaults. This naturally only made it a chance if the percussion mechanism would work, and at times it would give the projectile such an erratic flight as to surprise the gunner; while at the same time its passage through the air would make such a peculiar and appalling noise that it would have scared an ordinary Chinese army into fits. However in that war we could not scare the enemy by peculiar noises, and I never fancied the Parrot gun.

In the forts at Knoxville and Chattanooga, in addition to field guns, we had some 20 and 30-pounder Parrots, some 32-pounder Rodmans, and I thought we had some 64-pounder Rodmans (but I guess they were classed as 4½-inch Rodmans, as I can find no record of that sized gun on my reports); and the most pretentious pieces we had at those places were two 100-pounder Parrotts, mounted on Cameron Hill.

The navy and seacoast defense had at the close of the war a good many of the 8, 10 and 12-inch rifled Rodmans, and more of the 8, 10 and 15-inch smooth-bores, cast iron, and a few 20-inch of this latter make. They were all clumsy muzzle-loaders, and in action

each officer and man had a certain dread on account of the knowledge that these guns could stand the firing strain but a limited number of times.

The improvements in the siege and coast defense artillery of today over that of 1861-65 are so vast and sweeping that it can only be described as a revolution in the artillery service.

When an old artilleryman sees the arrangements at Sandy Hook, with air-compressors, disappearing carriages, and figuring distances by triangulation, and the beautiful and expensive breech-mechanism, it impresses him with the fact that it is necessary to employ civil engineers and machinists at that work, instead of soldiers. In comparing the artillery of 1861-65 with that of 1899, it is well to consider the uses of artillery. In the improvements that have been made, it appears to me that the whole effort has been to increase initial velocities, and make projectiles capable of penetrating ships' sides, and that they have overlooked that other and most important function of artillery, "the killing of men." I will pass the whole siege and coast defense question, by saying that I have not much confidence in the execution or effectiveness of the gun over six inches caliber, sighted and ranged by the schoolboy figuring of angles and elevations.

Don't try to shoot further than you can see, and about the quickest way to determine elevation, windage, drift, etc., is to make a test shot. I do not think much of the effectiveness of any artillery fire when the piece has to be elevated over fifteen degrees to reach the necessary object. In the engagement off Santiago that sank the Spanish fleet, none of the 13-inch projectiles hit and but two of the 10-inch. With a piece elevated over fifteen degrees the projectile passes through an entirely different stratum of air, in which the wind could be blowing in an unknown direction.

It is awe-inspiring to a man who has never stood behind the guns, to talk of shooting eight or nine miles with a 1100-pound projectile, but I think the boys that shot over the bluffs at Santiago did well to get six of their shell to hit the city. There are conditions that would oblige them to stand an ordinary city upon edge, or possibly group several cities together, to enable any effective work at a range that would require a thirty to thirty-five degrees elevation of the piece. This effort to make a shell with penetrative power and great velocity has made it comparatively safe for soldiers in breastworks or forts to withstand their attacks. Our fleet at Santiago, frequently bombarded the forts at the entrance to that

harbor and expended \$1,500,000 worth of ammunition, and I cannot find that they killed thirty men in all their bombardments.

The shell of to-day is a percussion affair. It is going 2,000 to 3,000 feet a second. If it hits in front of a fort or breastwork, the men naturally are protected; while if it hits inside of the fort or in the rear of a line of breastworks, all of the pieces go on, and only becomes a danger to the cooks, stragglers and hospitals usually found in the rear.

It appears to me that our officers, with their natural inventive genius would have, ere this, found some explosive to be placed in shells that would explode with such force as to scatter the pieces back and around the point of explosion.* It was this idea that caused me to offer the government a battery of Sims-Dudley dynamite guns at the opening of the Spanish War. I don't understand yet why it was not accepted, as I offered to not only furnish the men and guns but one year's ammunition for the pieces. Possibly because the ordnance office would be bothered by a new line drawn on ordnance reports, or possibly my old companion, General CORBIN, was afraid I would get hurt.

In regard to the execution of our artillery in 1899, we can say that we knocked everything silly that was afloat and could be sunk, but that the use of artillery in our battles as against men was ridiculous.

In 1861-65 artillery was used as an effective weapon in every battle. In my over two years' service with a light battery, we were attached to a brigade or division of infantry, and no matter how bad the roads or if there were no roads at all, we were with our brigade in every engagement. It was hard and trying work at times, but it was always done. Once or twice we had trouble getting our pieces out of action from the loss of horses, but we always were ready to begin.

During that war it was considered folly to charge breastworks or fortifications without first sweeping them with artillery fire, and this use of artillery was considered so necessary that the ordinary allowance would be a six-gun battery to 3,000 effective men. General SHERMAN, with all the difficulties to contend with between Chattanooga and Atlanta in the way of bad roads, had 230 guns with 98,000 effective men; and so on through nearly all of our armies.

In those days it was always considered as part of the general plan of action that artillery should sweep the ground before charges

*Note the effective use of Lyddite by the British artillery in South Africa.—EDITOR.

were made; pound down defenses in case entrenched or fortified resistance was offered; and even in lines of battle, by active massing of artillery on vulnerable points, create such consternation among the enemy, that infantry or cavalry could follow with a decisive stroke.

You can imagine my surprise when I saw that but *two* light batteries were placed on the firing line at Santiago, with nearly twenty thousand troops engaged; and that surprise continues when I find that with an establishment of 100,000 men in our army to-day, but fourteen light batteries are provided. Our army in Luzon only has five light batteries, although it is intended that 60,000 men should operate in that department.

Is it possible that the Ordnance Department has allowed the small-arms equipment to outclass our field artillery. In 1861-65 even the 12-pounder smooth-bore Napoleon had double the range of infantry small arms, and it always had been the plan of artillery experts to keep about that advantage. We all remember that the mountain howitzers toward the close of the war had to be left off any firing line, after rifles came in general use, and we can now see that the Napoleon guns would be but death traps to the men serving them.

So to-day our field service practically comprises the 3.2-inch field gun, the Hotchkiss rapid fire, and the machine guns of GATLING's and GARDNER's makes. In the machine guns mentioned it looks to me as though the officer that changed the caliber of the Gatling and Gardner guns to that of the small-arms, was not an artillery officer. He must have known that the rapid fire would reduce the range of that kind of gun in a short time so that opposing infantry could drive the men away from the piece or kill them off. Dr. GATLING's idea was to have a one-pound projectile, and in conversations I have had with BILL GARDNER, the patentee of the Gardner gun, and an old school-mate of mine, (the first repeating rifle he ever saw was my Martini-Henry rifle) it was plainly his idea to originate a gun that would throw balls twice the distance of the infantry rifle, and in a practical stream.

The improvement (?) of these machine guns may be a saving of labor to the clerks in the Ordnance Department, but it is hard on the men that serve the guns in battle, and it puts the machine gun equipment entirely on the defensive. They are good for street service, or for fort or breastwork defense, or for the same purposes that canister used to be used in resisting a charge; but with no

advantage in range over the infantry arm, they are of no practical use in offensive operations.

In the present field and rapid-fire field artillery I see that, while their range for shell and solid shot is possibly 5,000 yards, that the shrapnel is only fused for 2,000 yards.

As I have explained that artillery has been so improved that shell fire is practically harmless except to penetrate and destroy inanimate objects, this shortness of shrapnel range places the field and rapid-fire artillerymen at a disadvantage, in comparison with those of 1861. The present small-arms equipment of all civilized armies has about this range. The gun used by the Boer sharpshooters (the Haenel) has double that range, and you will notice that at Modder River they practically annihilated the English artillery.

To place the field artillery of to-day in line with the effectiveness of artillery of 1865, they must increase the shrapnel range to at least 1,000 yards more than the range of the infantry small arms, and they must increase the machine gun range in the same proportion. If artillerymen are to stand and serve guns within direct range of a small-arms firing line when we take the initiative in battle, each man should make his will before going to the front.

In 1861 this increased range enabled the artillery to be used as a saving and protection to the infantry, and was considered just as essential as the infantry itself. I know that at San Juan and El Caney, if thirty guns had been placed in position, and had been served effectively, the blockhouses would have been destroyed, and the Spanish infantry demoralized to such an extent that our losses there would not have been one-half what they were. In the island of Luzon, when all that was needed to drive the Filipinos to cover was to fire a few shots, had artillery been used before their breastworks were stormed, there would have been no storming to do.

It may be daring and brave for infantry to charge breastworks and blockhouses and forts without the assistance of artillery, but it is not *war*. In case we would attempt it against American or German or Russian soldiers, a battle, such as was fought at Santiago, would have been the death of half of the attacking force.

It is not well for Americans to overlook their field artillery; it is, and always will be a necessity for successful military operations. While our navy has plenty of 1-pound and 6-pound rapid-fire pieces, I see that it is left out of the field equipment of the army. While I freely acknowledge the superiority of the naval and siege equipment, I frankly say that our field artillery is not up to date.

The shrapnel range should be increased as I have suggested.

There should be shells as well as shrapnel controlled by time fuse. The shells should be charged with something stronger than powder. There should be two different charges of powder furnished field guns: one for extreme range, and the other to land shells at an enemy within say 3,000 yards, not going at a speed necessary to carry them 5,000 yards. The recoil should be taken up automatically, as is done with German and French field pieces.

The artillery should at all times have had a representative on the staff, so as to give recommendations in the construction of artillery. Let the men who handle the guns have something to say about the kind of guns they want. It looks to me as though the Ordnance Department is responsible for the present condition of our field artillery.

It is the duty of each member of the Loyal Legion to impress upon his Representatives in Congress the fact that the light artillery equipment in our military establishment is too small. Impress it upon them that half of our losses in killed and wounded in the last war was caused by a lack of field artillery.

I feel that one reason has been the lack of many appropriations, and the stingy ideas regarding army support that many Congressmen and Senators take an apparent pride in being a party to. I know it is expensive to keep in service light artillery, but to a people having the wealth and power of the United States, it would have been better to have expended \$250,000, if by that expenditure twenty-five good American soldiers' lives could have been saved.

While a soldier's life in times of war seems cheap, I for one do not believe in losing one American patriot, if by the expenditure of money in reasonable amount, that patriot's life could be saved to his country.

PROFESSIONAL NOTES.

CAVALRY IN SOUTH AFRICA.

The one point which has impressed itself upon all military men during the past month, in studying the conduct of the war in South Africa, has been the utter failure of the British generals to properly provide for the service of security and information.

In the first place, in accordance with a theory which, strange to say, still prevails in many quarters, that the field of usefulness of cavalry has become so restricted that it is not very useful anywhere, and is especially useless in a rough or wooded country, not half enough cavalry was sent to South Africa. The same deluded idea prevailed thirty years ago, when the veteran General SCOTT, then our commander-in-chief, gave it as his opinion that owing to the broken and wooded character of the field of operations of the Northern and Southern armies, the rôle of the cavalry would be secondary and unimportant. How absurd this now seems, when we think of the deeds of SHERIDAN, FORREST, WILSON, WHEELER, CUSTER, STUART, MERRITT, and many others. The same idea has prevailed as to the usefulness of our cavalry in Cuba and the Philippines, and yet in the end that arm seems to have been the main reliance in the hour of need. Looking at events through several thousand miles of space, it would seem to us that had a fresh cavalry regiment been held in reserve at Manila, at the time AGUINALDO began his late northern stampede, the Filipino leader might even now be on his way to Alcatraz.

A British officer—not a cavalryman—who was recently in Kansas City, purchasing draught animals for his army, is quoted by the press as saying: "But the greatest mistake of all was not sending the cavalry ahead. Had three brigades of cavalry been set down the very first thing in Cape Colony, they would have had maps of the country, correct information of the strength and distribution of the Boers, and many other needed facts, ready for the main body when it arrived. That should have been the very first consideration. Now the troops are fighting in the dark, all because of the notion that South Africa was no place for cavalry."

From all that can be learned, the British War Office judged that a single cavalry division of 5,500 men would be the proportionate amount of that arm for an army of 100,000 men.*

Poor little force! It seems to have been swallowed up in the vortex of infantry and artillery. Scouting, patrolling, and reconnaissance (with the exception of reconnaissance in force) may have been undertaken, but certainly there seem to have been no tangible results. The succession of ambushes and surprises into which the British army have been entrapped, is, to say the least, very startling.

Glencoe, October 20th.—General SYMONS lost 91 killed, 173 wounded, and a squadron of the Eighteenth Hussars captured; General SYMONS killed.

Elandelaagte, October 21st.—General WHITE lost 42 killed and 205 wounded.

Ladysmith, October 30th.—General WHITE lost between 2,000 and 3,000 captured, including a battalion of the Royal Irish Fusiliers, of the Gloucestershire Regiment, and the Tenth Mountain Battery.

Gras Pan, November 26th.—General METHUEN lost 198 killed and wounded.

Modder River, November 28th.—General METHUEN lost 438 killed and wounded.

Stormberg, December 10th.—General GATACRE lost more than 100 killed and wounded, and about 800 captured.

Magersfontein, December 11th.—General METHUEN lost 800 killed and wounded.

Tugela River, December 15th.—General BULLER's "serious reverse;" eleven guns captured.

One wonders if the results might not have been different, had these generals had each an adequate cavalry force to keep touch with the enterprising mounted scouts of the Boers.

In our own rough frontier service—a service not unlike that to which the Boers have been accustomed, the value of cavalry has been proven again and again—not alone on the level plains and rolling prairies, but in the most inaccessible mountain regions. And the irregular cavalry of the Boers, more properly a mounted infantry, have been so effective against the British, that if recent

*Cavalry Division, 5,500 men, 12 guns; three infantry divisions, 30,000, 54 guns; corps troops, 5,000, 48 guns; troops on lines of communication, 10,000; depots, 4,000; Natal field force, 16,000, 42 guns; not brigaded, 8,000, 18 guns. Adding 20,000 to 25,000 for Cape mounted rifles, Natal police, local troops, naval brigade and contingents from loyal colonies, gives a grand total of 98,500 to 103,500.

Cavalry Division, Colonel J. D. P. FRENCH; First Brigade, Colonel J. M. BABINGTON; Sixth Dragoon Guards, Lieutenant-Colonel PORTER, Y. C.; Tenth (Prince of Wales's Own Royal) Hussars, Lieutenant-Colonel FISHER; Twelfth (Prince of Wales's Royal) Lancers, Lieutenant-Colonel EARL OF AIRLIE; Royal Horse Artillery, "R" Battery, Major BURTON. Mounted Infantry, four companies, under Lieutenant-Colonel ALDERSON; Second Cavalry Brigade, Colonel J. P. BRABAZON; First (Royal) Dragoons, Lieutenant-Colonel BURN-MURDOCK, J. Y.; Second Dragoons (Royal Scots Greys), Lieutenant-Colonel Hon. W. P. ALEXANDER, Hon. W. P.; Sixth (Immskilling) Dragoons, Lieutenant-Colonel THOMPSON, A. G.; Royal Horse Artillery, "O" Battery, Major JERVIS-WHITE-JERVIS, Sir J. H.; Mounted Infantry, four companies, under Lieutenant-Colonel SUDWAY.

despatches are to be believed, England will adopt Boer tactics, and organize irregular cavalry from among the English yeomanry.

Cavalry may be an expensive arm to organize, equip and subsist, but if it comes down to a matter of dollars and cents, the security of the British army in the recent reverses would have been worth a million times what an effective cavalry screen might have cost. From the moral effect of the recent defeats, the war in South Africa is expected to cost the British government between \$100,000,000 and \$300,000,000.

In connection with the subject of the effectiveness of cavalry, comes an interesting cablegram from Paris, which says:

"According to private letters which have been received in England from the Transvaal, it seems that the Mauser bullets are unsuccessful in checking the attacks of cavalry, and that many horses shot through the lungs and even through the heart, were able to gallop 400 yards or so before they fell. Many riders were carried up to the enemy's position before their horses, though shot, fell under them. I understand that this news has interested the German Emperor, and may possibly lead to a radical change in the armament of the German infantry, for it must be remembered that the Germans are armed with the same kind of modified Mauser rifles as the Boers, and that if the fire of these rifles is unable to check the attack of the cavalry before it reaches the lines of the infantry, the latter can only be regarded as deprived of the greater portion of their efficiency."

Let not our legislators forget, in the coming reorganization of our army, the importance—nay, the *economy* in money and in lives, which cannot be measured by money, of maintaining an adequate force of cavalry. Cavalry cannot be made in a month from militia. The transformation process is slow. Given brave and fearless men, well-bred horses, expert marksmen, improved arms and equipment, it is not necessarily cavalry. Training is necessary, and training takes time. But when war begins, time is the one element which is most in demand.

Prince HOHENLOHE, the distinguished German officer, whose service in the line has always been identified with the artillery arm of the service, but who, nevertheless, writes so intelligently of all arms, says: "There has been much writing and fighting over the question as to what proportion the number of cavalry should bear to that of infantry. This proportion has varied in all epochs and in all armies. I consider that to lay down a hard and fast line for this proportion would be the act of a theoretical pedant. Under the law of universal service, which makes the necessity of rightly employing the whole strength of the nation in the hour of danger the only correct principle for the organization of an army, this proportion depends upon the condition of the Fatherland. The duties of the cavalry are so comprehensive and so important, especially at the first moment of a war, that we cannot have too many cavalry ready for service."

THE EDITOR.

EMBARKATION AND DISEMBARKATION OF HORSES
AT SEA.

This paper refers to the embarkation and disembarkation alone of horses, and not to their transportation. As to the latter operation, the question will usually be settled to a great extent beforehand by the Quartermaster's Department, whose business it is to provide, prepare and fit up the transports for the conveyance of men and animals, while the maneuver of embarkation and disembarkation will be left almost entirely to the device and ingenuity of the officer to whose charge this matter is committed. This is so of necessity, because of the divers conditions under which a landing may be effected, and the consequent impracticability of anticipating fully the circumstances of any particular operation of this nature.

I shall not attempt to describe any methods other than those which are laid down in the manuals, with which you are all familiar, but shall endeavor to point out the respects in which certain of these methods are to be preferred over others, if the choice should lie open between them all.

To enumerate the methods most commonly referred to, there are:

1st. By means of a gang-plank leading up from the wharf to the gunwale.

2d. By means of a sling and lifting tackle.

3d. By means of a hoisting-box and lifting tackle.

These may be modified to such an extent by the conditions under which the embarkation takes place, as to constitute entirely new methods; but as a rule they may all be referred to some one of these three classes.

The operation of disembarkation in any particular case is, generally speaking, the reverse of the embarkation; and would usually prove the more difficult in military operations of invasion, owing to obvious reasons of time-pressure and an excessive demand on the means available.

Some of the circumstances which affect the method of disembarkation adopted are these: Whether it is necessary to swim the horses ashore, leaving them to pilot themselves landward; whether under the same necessity, it were practicable to assemble a sufficient number of small boats to tow the horses ashore; whether large scows or lighters were available; whether a pontoon bridge were assigned for the purpose; or a wharf already at hand.

The first general method mentioned above, viz: by the assistance of a gang-plank from the wharf to the gunwale, presupposes ideal conditions. The vessel must not be too high, nor too far away, so that the incline would be either too steep, or would require a system of under-bracing.

These difficulties could be easily overcome, however, if the element of *time* does not enter the problem, and the water is of sufficient depth to permit the vessel to come alongside the wharf, in

which case this method seems to be the best and easiest in the long run, even if it be necessary to prepare quite an elaborate framing for approach to the ship.

Such was the method resorted to at Tampa on July 1, 1898, for loading light artillery horses on board the *Specialist* and *Unionist*. The incline was well braced, was provided with guard-rails along the sides and cleats along the flooring, and made one or two turns before coming up to the level of the deck, each turn assisted by a landing. The only obvious objection to this is that it is fitted to a deck, or cargo-port of one height above the wharf only. The gang-planks described in the texts are twenty feet long by ten feet wide, allowing the plank to be used in loading gun-carriages. It is provided with ropes at the corners, side-rails, or boards; and a similar gang-plank from the gunwale to the deck. These planks should be transported with the horses.

The second method—by means of a sling and lifting tackle—seems to recommend itself as the best under the usual conditions, and even under the worst conditions.

The third differs from the foregoing in the fact that the horse-box is used instead of a sling.

Comparing the merits of the sling and the horse-box, for the former it may be said that they are light, cheap, easy to make, easily repaired; and if the horse is to swim ashore, is easily thrown off after he reaches the water. The disadvantages of the sling are that it permits the horse to plunge and kick as he ascends, in fact it excites him to do so, running the risk of breaking a leg or injuring his head; with a refractory horse, it is difficult to apply; and it is questionable whether it does the horse any harm to be suspended in such a manner, for even a few minutes, during his frantic efforts to free himself. As for the box, it is easier to get the horse inside of it, incurs no risk of injury from plunging and kicking, and does not suspend the horse in an unnatural position. On the other hand, it must be strongly and carefully put together, involving time and expense; cannot be thrown around from place to place as needed; is not easily replaced or repaired if seriously damaged while in use; and if the horse is to swim ashore it is awkward and dangerous to dump the horse from it into the sea. All things considered, the sling is therefore better; and my experience with its use, after the trial of several other methods, confirms this opinion.

The sling described in TIDBALL'S Manual is made of stout web (or double-canvas), five feet long by two feet wide, secured at each end by a stout stick, two inches in diameter; the sides bound with doubled strips of canvas, making an edge four inches thick. Loops of four-inch rope are attached to each stick, one nine inches long (measured vertically from the center of the stick), and the other, thirty-five inches long, with an iron eye or thimble, fixed in the end of the loop. Breast and breech ropes, nine feet long, are fixed to each side, and are tied together when the sling has been put under the horse. The box is not mentioned in this manual, but may be

described as a small portable stall, with a gate in rear, and means of attaching the lifting tackle.

It is always more desirable, whatever the cost in time and patience, to pilot a swimming horse ashore, than to leave him to his own devices. I think that this was demonstrated in the landing at Guanica, Porto Rico, where several horses, left to themselves after reaching the water, went out to sea, and were temporarily lost. By chance they were afterwards found at the entrance of the harbor, where they had managed to scramble on a small shelf of rock.

Two horses, at most, can be conveniently towed ashore from one small boat; a greater number requiring the first horse to remain too long in the water before the last one is lowered.

If scows or steam-lighters are available, the problem is made quite an easy one. At Guanica there were two scows picked up, calked and bailed out, and put to the service of landing horses, each one carrying about twenty-five head. They were either towed ashore by the naval tenders, or poled in by natives. Before they were available, however, many horses were swum ashore, two to a boat; the boats used were the ships' boats belonging to the transports.

The sling described above was used almost wholly, although boxes had been made at Tampa and carried along. I saw a box tried and it worked quite satisfactorily for a short while; it was not long, however, before its weak points began to show themselves. In one instance the horse backed against the gate so far as to upset the equilibrium of the system, and the horse had a narrow escape from falling out backwards into a scow loaded with other horses and attendants.

The following method of using the sling was resorted to after a process of evolution through less favorable ones: The hook on the block of the tackle was run through the eye of the sling; the loop of the other end was passed through this eye and secured by running an iron pin through it; attached to an eye in the end of this pin was a line which was controlled by a man on deck; when the horse rested in the water, this pin was jerked out and the horse was free.

Still another method of disembarking is mentioned, though it is manifestly the least desirable and not to be resorted to when it can be avoided. When the deck is low, say not over ten feet, and there is a gangway, the horses may be backed off into the water without slinging—an operation which is liable to strain and injure the animal and render him timid about taking the water when crossing streams. It might be added as an additional circumstance in favor of the sling that those used in the shipping of horses above referred to, were made on board the transports (after we had set sail from Tampa) from the ship's material and by the crew.

The foregoing remarks are to be accepted as suggestions only, the outcome of a short experience, in which expedition was paramount; if they have any value they derive it from the possibility

that they may abbreviate the succession of mistakes through which it is always necessary to pass in order to arrive at good results.

BROOKE PAYNE,

First Lieutenant, Fifth Artillery.

FAIR LEATHER EQUIPMENTS.

Cavalry officers who have used the fair leather equipments issued to troops last summer, have found them quite serviceable and satisfactory, much more so than the black leather equipments. Subjected to tests in all climates and in all kinds of weather, to stains of dust, mud, sweat and rain, they have maintained a handsome appearance by simply being washed with harness soap or common castile soap.

Continued service seems to improve the appearance of the leather, the color of which changes from a light yellow to a rich brown. No dressing is necessary to keep the leather in condition; and hence there is an absence of stained clothing, caused by the dressing rubbing off on the trooper's trousers.

Two defects, not inherent in the color of the leather, were noted: The curb straps, possibly from the process of tanning, broke repeatedly, with hard-mouthed horses. A brass curb-chain is suggested, as not only being more ornamental, but less liable to rub off the skin in and about the chain-groove.

With the experimental saddles too, the quarter-straps were found about one inch longer than heretofore, necessitating the use of very short cinches, and bringing the cinch-ring too low on the horse.

C. D. R.

REPRINTS AND TRANSLATIONS.

THE HORSE RAISING INDUSTRY IN HUNGARY.

BY G. FRIDRIK AND H. DÖHRMANN.

[Extract from the Annual Report of the Royal Hungarian Minister of Agriculture for 1896.
Translated from the German by First Lieutenant L. C. SCHERER, Fourth U. S. Cavalry.]

The Avars, the Huns, and the Magyars, like the Cumanians and Petschenegers who arrived after them, came into the country bringing with them their oriental horses. That they retained these breeds, we conclude from their mode of life, and from the agricultural, climatic and soil conditions; and furthermore it is attested by the fact that their almost continuous warlike expeditions obliged them to keep such a tough breed of horses.

It is hardly to be assumed that, at this time, the occidental breeds had any real influence on these horses. It was somewhat later that our constant guests, the Turks, with their horses which were descended from a related and probably even purer breed, exercised an influence tending to change and probably to improve the type of the Hungarian horse.

The Hungarians always loved their horses, and certainly spent much care in the rearing and keeping. We have, however, no other indications as to the results accomplished by them in horse raising than the successes gained in the warlike expeditions which they undertook during the first century after their immigration, which successes point decidedly to their possession of superior horses. In such localities where the breed of horses, especially that in possession of the people, has been free from foreign crossing, we actually find subsequently as well as at the present time a horse that even in its generate condition bears evidence of attributes that point to the superior excellence of the original breed.

It should be mentioned, however, that in the western parts of the country, inhabited by foreign peoples, the occidental breed of horses was probably indigenous, and, judging from the traces still remaining at the present time, that all the people coming from the west from time to time, brought with them a horse of occidental

breed that was heavier, and at the same time, less active than the Hungarian type.

The Hungarian kings of foreign extraction, no doubt, brought in their trains foreign types of horses into the country, which left behind barely any traces, since they did not find here the natural conditions necessary for their existence, and the variable drift of style and fashion was also probably a cause of importation.

The Neapolitan-Spanish horse that came into fashion during the eighteenth century exercised a permanent influence, especially in the large studs of the nobility. But with the exception of a few less important localities, the national breed remained free from this influence also.

While this last tendency made the Neapolitan-Spanish horse at home in the larger studs, the horse in possession of the people, although it maintained the original type, was deteriorating in strength and size through the hardships of the campaigns and the lack of care, and to such an extent that as early as the time of MARIA THERESA, the demand for army horses had to be supplied from abroad, a proceeding which was connected with considerable material and other disadvantages.

These conditions induced the government, Emperor JOSEPH II., to take comprehensive measures in the interest of the horse-raising industry, which, up to this time, had been entirely neglected.

The reforms extended, in the first instance, to the establishment of stud-horse stations in the counties of Pest, Békés, Bihar, and Szatmár, as well as in Siebenbürgen, stallions being imported for the purpose from Turkey and Bukowina. Not only did these studs serve the mares of the farmers gratis, but the government paid the farmer one florin for each mare so served, and relieved him from the duty of furnishing relays. Everyone who had his mare served by a government stallion for four successive years received a mare with colt as present. Mares discarded by the army were turned over to farmers, who were required to furnish remounts in return.

Orders were issued containing instructions for a rational breeding; each county had to furnish an inspector of horse raising, who superintended the farmer-breeders. A veterinary school was established at Pest, and professional text books were issued. In various parts of the country prizes for horse breeding were introduced.

To give an idea of the extent of the reforms introduced by Emperor JOSEPH II., it may be mentioned that a single expedition sent out for the purpose of importing breeding horses, brought 500 stallions from the eastern countries. Since, however, such large importations could not come up to the standard of quality which would assure a thorough and permanent improvement in the breed, the establishment of a government stud, on the government domain at Mezöhegyes, was determined on, and put in operation on the 1st of May, 1785. Of the stallions bred here, a part were to be employed in the breeding of horses at large, and the other part were to

be retained at the stations for renewal of the stock of the stud, and serve some 3,000 good private mares each year.

The results of these measures were at first hardly apparent in the private studs, but the more so in national horse breeding, where every place of importance soon owned its own stud, which often assumed immense proportions; thus, for example, that of the town of Hódmező Vásárhely with a string of 3,000 horses, and that of Szentes, which was given thirty government stallions for the improvement of its horses. With the increase in quantity came also an improvement in quality. The localities in the vicinity of the stud stations were soon in position to supply part of the army demand for horses. The requirements as to height were as follows: for the horses of the hussars, fourteen and three-quarter hands; for those of the chevaux legers and dragoons, fifteen hands, and for those of the cuirassiers, fifteen and one-half hands.

The stud of Mezöhegyes was started with 553 brood mares, which were in part taken from Hungary, Germany, Moldavia and Circassia, and for the most part came from the army. Among the stallions there were at first to be found the most various races and breeds, as Holitsch, Holstein, English, Berber, Siebenbürgen, Polish, Lippizan, Mecklenburg, Neapolitan and Spanish. The heavier classes were for breeding horses for the cuirassiers, the lighter ones those for the light cavalry. The brood mares were arranged according to color into seven studs, in which the blacks and sorrels were each represented by two studs, and the other colors each by one stud.

Besides these studs, the immense pastures maintained annually some four to five thousand remounts. These, collected from various countries, introduced many horse diseases, such as glanders, farcy and mange, which at that time could hardly be exterminated, and from which even the breeding horses could not be kept entirely free.

The fact that Mezöhegyes also served as a depot of beef cattle for the army and maintained some nine to ten thousand head of cattle, besides the horses, induced the government in 1789 to purchase the domain of Bábolna from Count JOSEPH SZAPÁRY for 450,000 florins and establish there on May 4, 1790, a branch of the Mezöhegyes stud, consisting principally of Hungarian, Siebenburgian and Bess-Arabian mares. But here also herds of cattle were maintained. The real commencement of breeding in Bábolna was in 1806, since before this time the stock of mares was continually undergoing changes, and the twenty-one Spanish stallions kept there were used principally for serving the mares that were annually brought from Mezöhegyes for this purpose.

During the following years of war the two stud farms suffered considerably. Bábolna was set on fire by the French in 1807, while through the immense number of remounts coming in (12,000 to 15,000) Mezöhegyes was several times subjected to epidemics, which could only be exterminated by sacrificing a large portion of the stock on hand. With the conclusion of peace earnest and systematic

work was again taken up in both establishments. The stud inspector at Vienna ordered that only stallions of oriental breed were to be used at Bábolna. In Mezöhegyes the stock was divided as follows:

1. Turkish stud, } For breeding saddle horses.
2. I. Spanish stud, }
3. II. Spanish stud, } For breeding draft horses.
4. Neopolitan stud, }
- 5-6. Unimproved stud, for various purposes.

In spite of these measures breeding did not show any material progress. The heterogeneity of the stock did not admit of any conformity in breeding, nor did it lead to any uniform results. And as, contrary to the plain and unmistakable terms of the agreements made, only about one-tenth of the stallions raised remained in Hungary, while the remainder were sent to the other part of the monarchy, the improvement in the breed of horses at large, so noticeable immediately after the establishment of the stud farms, met a serious setback in the unfavorable conditions due to the war.

On the other hand private interests now became active. STEPHEN SZÉCHENYI and NIKOLAUS WESSELÉNYI were the pioneers in this enterprise. SZÉCHENYI commenced by introducing horse racing, the first races taking place at Pressbourg in 1826, and the second at Pest in 1827. He organized the association for horse racing, and then the association of horse breeders, brought into fashion horseback hunting, and worked ardently to introduce the English breed of horses into the country. Isolated importations of English horses had taken place at the end of the preceding century. Thus among other instances the Köpcsényer court stud, founded in the County of Neutra at the beginning of this century, imported a string of one stallion and fourteen mares from England in 1814. Still it was due to the unceasing energy of the two first mentioned persons that English horses were imported and bred in the country in such numbers, that about 1830 there was hardly a private stud that did not contain at least one English stallion.

It should also be mentioned that besides the progress made in the breeding of English horses, Baron FECHTIG imported Arabian breeders of excellent stock, which aided considerably in improving the national stock. Commencing in 1811, FECHTIG at various times imported large numbers of pure Arabians, especially stallions, which found their way into the principal private studs, as for instance, those of FESTETICH at Keszthely, the stud of Prince ESTERHÁZY in Ozora, the HUNYADY stud at Úrmény, and among others, also into the stud at Bábolna. As FECHTIG afterwards made his home in Lengyeltóti, and there established a stud farm, the salutary influences of these importations were mostly felt in the district on the further bank of the Danube.

Besides the incidents mentioned, it is to be noted that at this time several counties began keeping stallions for general breeding

purposes. In some localities these stallions were for a long time the only means for improving the national (breeding) stock.

In the meantime the government studs were also making rapid progress. Especially in the breeding at Mezöhegyes there are many important incidents to record; for at this time there were acquired the young stallions which later became the original sires of the breeds of Mezöhegyes and Fogaras.

In 1816 a Maestoso stallion was brought from Lipizza, which became the original sire of the Maestoso breed. In 1817 Mezöhegyes received the stallion Nonius, which our soldiers captured in 1815 from the French government stud at La Rosière. (The sire of Nonius was the English half-blood stallion Orion, and the dam was a Norman mare.) In 1817 the full-blood Arabian stallion Gidran (imported by FECHTIG) was brought from Bábolna to Mezöhegyes, and from this stallion and a Köpcsényer dam came the original sire of the present Gidran breed. In 1841 the full-blood stallion Furioso, bought by Count GEORG KÁROLYI in England, was added to the stud of Mezöhegyes. These additions were of great importance, not only to the government stud, but also to national horse breeding.

At this time the product of the Mezöhegyes stud was employed in such a manner that the young stallions that were not needed to replenish the stock of the stud, were turned over to the stallion depots, while the other young stallions, suitable for breeding purposes, together with the supernumerary young mares, were sold at public auction.

During the years 1816 to 1848 there were six different importations, aggregating in all thirty-seven primitive Arabian draft horses. It is surprising, however, that contrary to the established principle, three full-blood English stallions were also added to the stud, whereas from 1822 to 1832 the only stallions used were those of Spanish origin from the Köpcsényer court stud. From this crossing there resulted a horse of larger size, but this increase in size was at the expense of the type.

The incidents of the year 1848 occurred while the government stud farms were in this state of development, and they got their share of the general confusion. The Bábolna stud was hurriedly removed to Gödöllő, and from there to Graz, in which move the entire stock made the trip from Bábolna to Graz in eleven days.

The Mezöhegyes stud did not have to be removed for safety, but as nearly the entire personnel left, the epidemics, which had never been entirely exterminated, raged with great fury on account of the lack of superintendence and care.

The struggle for liberty was not without its influence on the industry of horse raising. It manifested itself principally in the great decrease in the supply of horses, and in the stagnation in national horse breeding throughout the country, with the exception of the district beyond the Danube. This blow struck with greatest severity the important Siebenbürger stud, which was indeed completely broken up.

This unfortunate condition induced the government to institute far-reaching measures in the interests of horse breeding, and indirectly in the interest of the military establishment of the country. They consisted in the establishment of a third stud depot at Kisébér and the establishment of state stallion stations.

Government stallion stations had, of course, already existed since the preceding century, but they did not answer the original purpose, as the number of stallions was too small and there was not sufficient uniformity of superintendence and direction. The stallion depot established in 1807 in Deés with sixty stallions, formed the nucleus of these institutions in Siebenbürgen, which, after the addition of the stallion station in Retteg in 1835, numbered 154 stallions in 1854, which were distributed in sixty-two stations. Already, in 1856, we find in Siebenbürgen regular stallion posts at Sepsi-Szent-György, Homoród, Retteg and Deés, with 160 stallions.

The first stallion posts established in Hungary were those of Stuhlweissenburg and Kisébér, with seventy-four stallions, distributed in twenty-two stations. In 1855 the post of Kisébér was transferred to Moór and a new post with sixty stallions was established at Nyitra-Bajna.

In 1859 the stallion depot at Nagy-Körös was established, with posts at Nagy-Körös, Versetz, Eperjes, Baja, Kis-Szent-Miklós and Almosd. The government stud at Kisébér was established by imperial decree on the domain formerly belonging to Count KASIMIR BATHYÁNY. It commenced operations on the 1st of October, 1853, with six stallions and fifty-two mares, which stock was soon increased to 120 head by the addition of mares from Bábolna, Piber, Kladrub, Mezöhegyes and Lipizza, as well as by purchase from the Csapody stud at Berki, which was broken up. The very mixed stock of mares contained English, Arabian, Norfolk, Mecklenburg, Irish and also Percheron breeds. At first English full-blood stallions were used, but also occasionally Lipizzanians, Arabs and Norfolks. For the service of the Percheron mares only stallions of the same breed were used. Commencing in 1855 private mares were also admitted to the service.

The original object of keeping this stud was the raising of well-bred half-blood horses, and in conformity with this object the English full-bloods were well represented.

When, in 1860, a racing stable was established in Kisébér, the stud contained twelve full-blood stallions and thirty-three full-blood mares. But the mediocre results achieved on the race track led to the breaking up of this government racing stable in 1867.

At this time there were repeated importations of English breeding stock for the stud, thus among others Bucaneer and Ostreger in 1865.

In the meantime a rational plan of breeding was also adopted in the other two government studs. At Mezöhegyes the division according to race was undertaken. The division was into a draft, two

Arabian and two English, a large and a small Nonius, and the Gidran and Maestoso studs.

In 1852, three English full-blood stallions were imported, among them North Star, one of the original sires of the present half blood (Furioso-North Star) breed.

Bábolna in the meantime had received two fresh importations of primitive Arabian breeds of twenty stallions and thirty-six mares.

The above mentioned measures were of far-reaching influence on national horse breeding, which really owes its foundation and subsequent development to the government influence that made itself felt at this time.

The number of stallions which in 1858 aggregated 689, distributed in 200 stations, was doubled by 1868, at which time 1331 stallions in 392 stations were provided for the service of 49,509 mares of the country.

The development of the national industry at this time was due principally to government aid. This is attested by the fact that the localities where government stallions had been provided for a long time, are to-day in possession of a remarkably better breed of horses. Still even during this period, private enterprise was also active in the improvement of the breed of horses at large, attempts being constantly made to supply the still existing insufficiency in the number of government stallions by private ones. Individual communities began to keep their own stallions, and the best private stud farms placed their stallions at the disposal of the small breeders in their vicinity.

The military administration of the breeding establishments had, however, the disadvantage, that it lacked that contact with the people which would bring the interests of breeders in full touch with the governmental influence.

The older large private studs, which were based on oriental and Spanish breeds, but which occasionally employed English breeds, also showed material progress. But their activity depended mainly on personal inclination, so that the results of this branch of the industry did not play an important part commercially. Horse owners still had to get their fancy horses, and the army a large part of its remounts, by importation from abroad. It should be admitted, however, that the export of horses which in previous years had been insignificant, rose in 1869 to the respectable figure of 5,744 horses, valued at 437,949 florins.

It may here also be stated that the first horse census in Hungary was undertaken in 1857 by the Imperial Royal Statistical Office at Vienna. The total number of horses in the countries of the Hungarian crown was 2,095,949, while that in Hungary proper was 1,569,823.

As a result of the adjustment of 1867, by imperial decree of His Majesty the Emperor and King, dated November 2, 1868, the

administration of the government breeding establishments was provisionally transferred from the Ministry of War to the Hungarian Ministry of Agriculture. This transfer was at first only temporary, but was made permanent by a decree dated July 29, 1869.

At this time the government stud at Mezöhegyes contained nineteen Pepinier stallions and 497 brood mares, which were divided into the following ten classes: (a) The draft stud; (b) the heavy; (c) the light English half-blood stud; (d) the Gidran stud; (e) the Schagya stud; (f) the large, and (g) the small Nonius stud; (h) the Maestoso stud; (i) the small Lipizzani (Conversano) stud, and (k) the mixed stud. The total aggregated 2,240 horses. Immediately after the transfer was effected, the Hungarian government assembled a commission, composed of horse breeders, of members of the Hungarian Jockey Club and of the National Hungarian Agricultural Society, and of an official of the Department of Agriculture, who were to inspect the entire stock of the three government studs, and to determine a set of regulations which were to govern breeding in the future.

At this time the state of the agricultural conditions in general demanded several innovations in animal industry. Sheep raising, formerly carried on on such an extensive scale, was becoming less and less remunerative.

The extensive pursuit of wheat and rape seed raising absorbed a large part of the meadow lands and pastures, and wrought more and more injury. Even the results of cattle raising no longer came up to expectations. Farming, therefore, had to give its greatest attention to an industry—that of horse raising—which promised most from the existing conditions.

This was demanded by the natural conditions which are especially favorable for the success of the horse raising industry in the country, and also by the foreign competition which, despite our progress in national horse breeding, was still noticeable by the extensive importations of horses.

Even the army, our best customer, was still forced to obtain a large part of its horses from beyond the boundaries of the country.

This condition of affairs led to the attempt to undertake horse raising on a more extensive scale, and it was at the same time the prime factor in determining the general object of the industry. Matters which in private stud breeding regulated themselves under the surrounding conditions, had to be brought about in the naturally less intelligent industry of horse breeding at large by setting to work the influences of the governmental and social institutions.

The insufficient number of stallions of the then military stallion depots, the lack of pasturage and absence of regulated pasturing conditions and the defects in raising and keeping the material up to the standard, but especially the lack of contact which would have united the government stud establishments and the large and small private establishments to common and uniform work, were opposed to the accomplishment of the best results. During the time when the

government horse breeding establishments were still under the administration of the War Ministry, all energies, wherever the horses of the locality offered suitable mares, were usually directed toward the production of horses suitable for army use. After the transfer of the establishment to the Department of Agriculture, a different object prevailed. This was to extend the improvement of horses at large to all classes, and to increase the capacity of production in all localities suited for this work.

The qualities of the horse to be raised depended on many circumstances, of which the following may be enumerated: The general climatic and soil condition of Hungary; the agricultural conditions which require that the farmer's horse be able to traverse long distances at a rapid pace, and on the other hand also to do heavy farm work and to stand fatigues of all kinds; the inclinations and customs of the Hungarian people; the poor results in the other branches of animal industry; the build of the horse; the necessities of the army and of its efficiency; and the no less important commercial considerations that good Hungarian horses meeting these requirements would find a large demand abroad—all these circumstances had weight in determining the object of the general industry. This object was to promote by every possible means the raising of a horse as well bred as possible, combining speed with endurance, hardened, tough and equal to hard work.

Consideration had, of course, to be given to the size of the mares on hand which would admit of using the types to be found in the various localities, and of getting the above mentioned qualities, and also to special requirements of exceptional districts, for example in southeast corner of the monarchy, in the territory of the heavy draft horses and in the mountainous localities where the small, tough, mountain horse thrives.

The work of the government horse breeding establishment had to be made to conform to this general object of breeding.

At the time of the transfer, the English full-blood stud at Kisbér contained such excellent sires that it was not deemed advisable to make changes in this stud.

In the case of the still comparatively young half-blood stud in Kisbér, it was only necessary to continue and improve the method adopted for the production of well-bred English half-bloods, which work was greatly aided by the transfer of several noted half-blood mares from Mezöhegyes.

Better types from the Gidran and Schagya studs from Mezöhegyes were added to the Arabian half blood stud in Bábolna, but the use of the Arabian full-blood stud at Bábolna for thoroughbred service was continued.

In the stud of Mezöhegyes it was decided to keep the following four divisions as meeting the requirements of national horse breeding: (1) the English half-blood; (2) the large Nonius; (3) the small Nonius, and (4) the Gidran stud. The draft stud was not considered suited to the general plan and was in time gotten rid of, and

the best part of the Arabian stud was transferred to Bábolna, and the Lipizzanians to Sibenbürgen.

Thus there was created in 1874 the general stud of Fogaras, by transferring the Lipizzanian stud, which had been acquired for the purpose of improving the breed in the mountainous regions, from the rich soil of Mezöhegyes to the mountains of Siebenbürgen, where the conditions were more favorable for the purpose.

This arrangement of the stud was followed by the effort to supply each stud with the necessary thoroughbred original sires corresponding to the breed and type. Thus excellent full-blood stallions were acquired from England for the studs for English crossing; for the Arabian stud primitive stallions were obtained from the desert, or oriental full-blood stallions from the best sources; and stallions from the court stud of Lipizza were procured for the Lipizzanian stud at Fogaras.

The general aims of the breeding, *i. e.*, the production of a horse of tough and enduring constitution and the increase in the breeding capacity, were only to be accomplished by suitable keeping and raising, and by a series of systematic experiments.

In order to offer all the natural conditions of development required by the end in view, the government studs introduced heavy but economic feeding, and the practice of accustoming the young horses to regular and strengthening exercise. Besides this, the rule was laid down that the best test as to the method of breeding was the systematic trial of the young horses in suitable work, taking into consideration the requirements permissible in the case of each breed and class.

The improvement in the powers of the horses soon was such that the young stallions and mares could be taken to the hunting field to prove their worth and endurance.

In order also to accomplish the general object in the national industry, the organization of the national horse-breeding service was necessary in the first place, which was accomplished by means of county horse-breeding committees. This institution, with branches spreading throughout the entire country, formed the connecting link between the national industry and governmental direction, and made it possible that the intentions of the directors of the national breeding industry would reach and be understood by all classes of people engaged in the industry; it also made it possible to establish rational principles and methods in raising and keeping the stock of the country.

For the improvement in the quality of the stock it seemed furthermore advantageous to have the best mares of private studs served by the best stallions, and to draw thereby the better classes of private breeders into the general scheme, so that the influence of the government horse breeding establishments would thus reach the country at large through these better classes.

For this purpose the government commenced to rent out government stallions from the stallion depots to the large breeders, whereby

not only the breeds of these studs were improved but a more extensive and sure foundation was created for the production of stallions, a result very much to be desired, for at this time there was still a scarcity of good stallions.

In view of the general aim to produce a well bred, hardened and enduring horse, suitable at the same time for military purposes, the breeding of English full-bloods could not be neglected. For this purpose the most valuable aid given was that of the subsidies to the racing associations, especially the Hungarian Jockey Club, in the shape of prizes, which at the present time aggregate 30,000 florins.

As the output of the private studs and private breeding establishments increased, the government began buying from these institutions the best adapted one-year-old stallions in large numbers, and to raise them for the national industry. These purchases were soon extended to full grown horses. At present, however, contracts for raising stallions from the stallion colts are made with those breeders whose stock warrants this. Of the stallion colts classified annually by a commission appointed by the government horse breeding establishment, those that appear suitable for breeding purposes at three years old, become the property of the government at a certain fixed average price.

The national industry received another impulse by the introduction of the itinerant horse-purchasing boards (three military officers) which dispensed with the troublesome middle men, looked up the large breeders from time to time, and bought up the remounts directly from the producer.

In the same manner opportunity was given to the small breeders to dispose of their stock directly by opening spring and autumn horse markets.

Since the number of government stallions could only be increased gradually, the government laid special importance on the acquiring of community stallions, and sold a portion of the young stallions purchased from private studs to such communities as asked for them, cheap and on easy payments.

Freedom from interruption is one of the prime requirements for success in this work.

The danger of reverses to which the horse-raising industry of the nation is exposed on mobilization in case of war, induced the Legislature to enact law XX of 1893, exempting from army conscription the entire stock of better horses, especially the registered private stallions, and also the mares that had been served by these or by government stallions. This show of favoritism also constituted an inducement for the small breeders to keep a better breed of stallions.

To stimulate a correct choice of brood mares, as well as to encourage the proper keeping and care of the stock of the smaller breeders, the distribution of prizes was inaugurated and the establishment of colt pastures and common colt enclosures was advocated

and encouraged to replace the commune pastures which had been absorbed by the plan of consolidation.

Several other measures were also inaugurated for the promotion of the horse-breeding industry. Thus the animal sanitary law was passed which was to protect the immense wealth represented by the industry from the serious losses during epidemics. The animal sanitary service was regulated and the instruction of the necessary veterinarians provided for. In many localities shoeing schools were established to train good horseshoers, and the agricultural schools for farmers, which had been established in the meantime, aided considerably in disseminating correct ideas as to breeding and keeping among the smaller farmer breeders.

The rates of railway transportation for breeding horses were greatly reduced to facilitate the purchase of good breeding stock. Of far reaching import for the industry was also the law regarding agricultural and animal industry, which was devised to regulate pasturage, the acquirement and keeping of sires, the choice of stallions, and the national breeding districts. As being in the interest of the horse-raising industry, there should also be mentioned the law laying a tax on the "totalisateur," (racing purse) which provides the means for the importation of the best English thoroughbred breeding stock.

Combined with these state efforts and institutions looking to the improvement of the national industry, the activity of communities, societies and individuals also manifested itself in this direction.

The Hungarian Jockey Club merits first mention since it steadily promoted racing in the interest of thoroughbred breeding, and gave considerable racing prizes, partly out of its own means and partly from the gains of the totalisateur.

The first race course of the capital was soon followed by race courses in the provinces and by provincial racing associations.

The agricultural associations inaugurated special horse markets to secure the product of the large and the small breeders a ready outlet.

Horse shows and prize competitions which permitted of the trials of horses according to their class, were endorsed by society and received more or less government aid, and in a similar manner, riding, hunting, mounted games and the popular long distance rides were coming more and more into fashion. On account of the distances to be covered and the endurance and toughness demanded, the long distance rides were more to the tastes of the Hungarian sportsmen than the international trotting races, and this fact had considerable to do in retarding the introduction of trotting races in Hungary.

Another result of the influence exercised on the industry was the constantly increasing interest that caused the people to combine their resources for the purpose of keeping stallions for breeding, and for the establishment of colt pastures and the colt enclosures.

Besides the ground covered by combined energy, there remained, however, a large scope for individual effort for the private breeders. Thus the national industry is indebted to the breeders of the English thoroughbreds for the importation of much valuable breeding stock. In the same manner other breeds were also imported which were of more or less benefit to the national industry.

Here also belong those substantial offerings which men interested in horse racing made in the shape of large purses for horse racing, thus contributing indirectly toward thoroughbred breeding. Finally, in general, the healthy development of the larger private breeding establishments with the resulting fact that a large part of the stallion production is in the hands of private individuals. It is a fact that one-third of the stallions in possession of the government come from the private industry of the country.

In passing now to the results of the agents that we have described, we turn first to our thoroughbred breeding which has acquired a noteworthy position on the European continent.

It should be stated here that Kiséb is to this day the center of the thoroughbred breeding industry of Hungary, because it contains full-blood stallions of a class which private individuals could not afford to keep. About 200 full-blood mares are covered annually at Kiséb, netting an income of 200 to 400 florins per year.

The small full-blood stud is also maintained at Kiséb, and helps to reduce the very high expenses connected with the keeping of stallions. The twelve to twenty full-blood one-year-old stallions annually sold at auction have, since 1870, brought an average price of from 611 to 2,257 florins. In 1885 the highest average price was 4,575 florins.

Private industry from a modest beginning has developed in Hungary in such a manner that there are from 600 to 700 brood mares and many domestic and imported stallions owned by private parties. The exports also greatly exceed the imports, which, with such an article of trade, shows the capacity of production. It must be noticed that at the present time there are 313 full-blood stallions in the state stallion depots for the service of mares at large.

Our half-blood breeding is intimately connected with the full-blood breeding, and in this respect the government stud at Kiséb occupies a conspicuous place and is an influential center for the breeding at large.

This well-bred half-blood stud, consisting of about 170 broodmares, furnishes annually some forty young stallions for the government stallion depots, and there are at present some 360 such stallions for the service of mares at large. These stallions are principally used by those large private breeders who wish to raise a well-bred, well-built saddle or light carriage horse. In the small industry and in the breeding at large, the Kiséb and full-blood stallions breed the better class of light remounts.

The state stud at Mezöhegyes is the center of the extensive English breeding industry and meets in a direct way the various

demands of the horse breeding industry at large. The breeds found there at the time of the transfer have been materially changed by suitable crossing with English full-blood stock. The stallions of the Gidran stud of Arabian origin are best suited for the oriental types of Hungarian mares. Among the large private breeders, this race is especially in demand when the object is to raise, besides the saddle horse, a light draft horse suited for agricultural purposes. Among the smaller breeders, the Gidran stud stallion and the easily kept, competent Arabians are used for the purpose of improving the medium sized stock of the country, which crossing produces good, useful draft horses and remounts. In the stallion depots, the Gidran breed is represented by 263 stallions, part of which come from private breeders.

The horses of the large Nonius stud, consisting of about one hundred brood-mares, belong to the larger draft class, but among them are also found types of the large hunters. Among large private breeders, these stallions are used principally for the service of brood-mares used in farming, which crossing, besides keeping up the stock of farm mares, provides the market with strong carriage horses. The markets established along the western export lines assure a good demand for this class.

For the same reasons, as well as on account of agricultural considerations, the large Nonius type is used for national breeding in the vicinity of these markets, and in general in those localities where the large mares and the large production of feed favor this crossing. At present 270 state stallions of this class are used for the service of mares at large.

The small Nonius stud, consisting of one hundred brood mares, related to the foregoing class but differing from it by a smaller build, is a very useful element in national horse breeding, on account of the characteristic stocky build, quiet temperament, tractability and willingness to work. The small Nonius is the type of the ideal Hungarian farm horse, which is suitable for agriculture, and for which there is always a good demand in the markets. This stud is represented in the state stallion depots by some two hundred stallions.

The Mezöhegyes English half-blood (Furioso-North Star) stud, consisting of some 130 brood-mares, represents the large and medium draft class, but also includes some types of the saddle class.

The Mezöhegyes half-blood stud, which is more massive and larger boned than that of Kisbér, is represented in the 1110 half-blood stallions in the state stallion depots by 200 stallions, and is sought among the larger private breeders principally for the production of a large-boned horse, but also for the direct reproduction of this much sought type. For the same reason these stallions are in great favor in national breeding.

The state stud at Mezöhegyes furnishes annually ninety to one hundred stallions of its own raising for the stallion depots, while at the same time it disposes of an equal number of stallions, purchased

from private breeders as one-year-olds, to the communities as commune stallions. Since the inauguration of the system of purchasing one-year-olds, the establishment has sold nearly seven hundred such stallions to communities.

The preservation of the oriental blood at the state stud at Bábolna is made necessary by the demands of the small breeders, but is not demanded to any great extent by the large private breeders. There are at present in the state stallion depots about twenty-five full-blood and 332 half-blood Arabian stallions.

On account of their enduring and tough constitution, their gentleness and docility, the Arabian class also finds much favor among the large private breeders. The product of this crossing is a light saddle horse and a roadster, the modest market price of the latter being in proportion to the relatively small cost of raising. In national breeding this class is still necessary, especially in those localities where the stock is of oriental origin and of small stature, and where the less developed agricultural conditions and the limited production of feed demand the keeping of a less pretentious horse. The primitive stock of the extended sandy plains and of the steppes, as well as of the mountainous regions where vegetable life is scant, reproduces faithfully the oriental type.

The breed of the very useful mountain horse found in the higher altitudes of our mountainous regions, was improved by the Lipizza stud, which itself was descended from oriental blood, and through the conditions of the rocky plateaus of the Istrianian Karst district developed into a special mountain breed. For this purpose there is raised in the mountain pastures of the state stud at Fogaras, a stallion that as a rule is small but broad, hardened, tough, and has sinews of steel, and extremely hard hoofs. This class is represented by 215 stallions in the state stallion depots.

The Fogaras horse belongs to the small draft class, but is extremely useful as a saddle horse for the mountain regions. This breed has no share in supplying the remounts. Its commercial value, even for the large private breeders, is but a modest one; well matched fancy roasters, however, often bring high prices. In the localities where this breed is suitable, it has added much to the prosperity of people whose horses play hardly any part commercially and are not at all pretentious.

The number of stallions in the state stallion depots, an institution of great influence in national breeding, rose from 1,000 in 1868, to 2,838 in 1897. Among them are 313 English full-blood, 1,110 English half-blood, 25 full-blood Arabs, 332 half-blood Arabs, 473 Nonius, 263 Gidrans, 15 Norfolks, 215 Lipizzans, and 92 heavy Norman stallions.

This number is distributed in eighteen scattered stallion depot posts, so that the 1,000 communities of the country provided with serving stations are kept in touch with the institution and can bring forward their claims promptly. The government serving stations of the country are at present so numerous that during the serving

period from March 1st to the last of June, the breeder can find suitable stallions in every horse-raising locality in the country.

The thorough organization of the national breeding service, the progressive increase in the number of stallions, the inauguration of the system of renting out stallions, the facility in marketing, and all the other factors above cited, have finally awakened the general interests of the masses in the industry, so that at present the production in quality as well as in quantity has risen to large proportions.

While thirty years ago it would have been easy to enumerate from memory all the private studs of the country, there is at present hardly a large landed estate or a large farm without its own stud. As evidence of the quality of the increased production, may be cited the result of the long distance rides between Vienna and Berlin in 1892. Of the forty-two prize winners from many countries, fourteen horses were of undoubted Hungarian blood and arranged according to the time of arrival, the first, third, fifth, sixth and seventh were horses of Hungarian raising.

A further proof of the steady progress in private breeding is found in the constantly increasing exportation, and the steady demand abroad for Hungarian horses, especially for the light and medium weight saddle, the roadster, and the medium weight carriage class. As to the present tendency in breeding, it may be said that the large private breeders seek nearly exclusively the government types and breeds, although in a few private studs the more important foreign breeds are also to be found. In general, however, it may be said that the guarantee for the further progress of the horse breeding industry lies in the ability of the large private breeders to supply a sufficient stock of good stallions.

It may in truth be said of the small breeders and of the industry at large that the country is able to furnish a good, relatively cheap, and at the same time a well bred and capable horse for general and army use. Only thirty to forty years ago, half wild horses had to be brought from Russia to mount the army. At present the home industry is fully able to supply the demand. Sixty to sixty-five per cent. of the annual demand of some 7,000 horses for the common army is supplied by direct purchase from the Hungarian breeders, leaving out of consideration the considerable number that find their way into the army through middle men, and also the mounts required for our Honvéd army, and those required for the Austrian Landwehr, which last demand is in great part supplied by Hungary. Besides this the states to the south and southeast export large numbers of horses for military purposes, and there are many horse dealers engaged in exporting Hungarian horses to all parts of the world.

According to official reports the number exported is increasing every year; but the number of the registered export is far behind the uncertain numbers of actual export. The frequently noted migration between the time of foaling and raising, which springs

from the principle of division of labor is not without effect on the Hungarian horse-raising industry. Thus on the eastern and northern boundaries of the country, it has nearly become a set rule that the colts, soon after weaning, are taken by the dealers to Galicia in large numbers. In the same manner many colts from the counties of Pressburg, Trencsén and Neutra, find their way through the horse markets in Raab and Komorn, into the possessions of dealers in Érsekújvár, who use the young animals for light draft purposes, and when they are full grown sell them to lower Austria and Moravia. It is also known that many of the colts of the heavy Norman breeds in the counties of Zala and Eisenburg, after weaning find their way back to the original home of the race.

According to official data, the number of horses has decreased about 70,000 head between 1870 and 1884, the date of the last horse census. This reduction would be a source of anxiety were it not for the fact that out of a total of 1,748,000 horses in 1884, there were 583,000 mares and 490,000 young colts, whereas in 1870 there were 760,000 mares with but 334,000 colts. This is a good indication of the improvement of the industry and export trade.

A comparison of the services of the government stallions also indicates the improvement in the quality of the stock. While in 1868 only 30,000 mares were served by government stallions, this number rises at the present time to 135,000 mares.

We can, therefore, contemplate with satisfaction the evident rapid and healthy development of the national horse-raising industry in the last decade, and while there is much lacking to attain perfection, we have the future open before us to attempt the necessary remedies by systematic efforts in the right direction.

CHARGING BLADE FOR CAVALRY.

The charger's coat of mail of the old days of knighthood has been obsolete for many years, and it has never, apparently, occurred to anyone since that time to protect the cavalry horse from injury by any sort of armor until FRANZ HIEKE and CONRAD HEIKE, of Philadelphia, patented recently the cavalry equipment. This arrangement consists of a light iron framework to project in front of the horse and extends along his flanks, supported by straps. The end of the framework, which is shaped like the bow of a boat, terminates in a sharp point or blade, which is apt to demoralize any troops upon which the cavalry charges, at least causing them to turn to one side or the other to evade it, and making it difficult for anyone, mounted or unmounted, to approach very near the trooper. Just in front of the breast of the horse, and suspended from an iron rod fastened between the two sides of the framework, is a curtain of chain mail designed to protect the horse from injury. The claims made for this equipment are that it is novel, inexpensive, of light

weight, and does not interfere with the freedom of movement of the trooper or the rapidity of travel, combining a formidable weapon and a protector for the horse.

THE ALASKA REINDEER.

WILLIAM A. KJELMAN, who has charge of the government reindeer station in Alaska, has returned to spend the winter with his family. Mr. KJELMAN takes a more hopeful view of the reindeer experiment than do a great many others. He says the reindeer will eventually be used as a food supply as well as in furnishing a means of transportation.

Mr. KJELMAN took the first deer into Alaska in the summer of 1894, when he transported 400 across from Siberia. He had been in the business of reindeer raising in Lapland before coming to this country, which led to his selection as reindeer superintendent in Alaska. Since then he has brought two herds of these animals from Lapland.

There are now about 2,500 reindeer at the seven Alaska stations. The rate of increase in the herd is about the same as that of cattle. Mr. KJELMAN says the reindeer are good transportation animals on the coast for distances up to 200 miles, but when driven that distance they must be allowed to rest, as the moss upon which they feed does not furnish them the strength needed to withstand great exertion. He thinks they would do better as transportation beasts on the horse diet of oats and hay, and that such food would tend to increase their size and weight.

INTRENCHING BY STEAM.—THE HUGE PLOW ENGINE TO BE USED IN THE TRANSVAAL.

The latest development in modern warfare is the steam intrencher, a huge plow that will throw up a four foot intrenchment at the rate of three miles an hour. This colossal machine is the invention of Colonel TEMPLER, director of military ballooning and steam transport, now on his way to South Africa in charge of the new steam transport company and balloonists of Royal Engineers. A trial of the plow was made yesterday (Monday) on the Long Valley. A traction engine was attached to it, and it fully carried out the work expected of it, cutting deep into the very rough ground it was tried on, and throwing the excavated earth up on one side, forming a very serviceable shelter-trench. The body of the machine consists of a powerful horizontal framework, made at an angle of ninety-five degrees, mounted on two large iron wheels at the angle. At each extremity is an immense plowshare, four feet by four feet, fronted by a six-inch steel pick. These plowshares point one each way, so that by bringing down the end required the earth is thrown

either to the right or left. The steel pick splits rock or stone that comes in its way, and the whole machine is guided by means of cogged wheels that slew the carrying wheels to the right or left. The machines, two of which are going to the Cape this week, would follow a line of skirmishers at right angles, protected by artillery, and makes a trench behind them for the purpose of occupation in carrying an intrenched position. The engine and machine would, of course, be suitably protected by plating.—*London Telegraph.*

MOVABLE STEEL FORTS.

So far the most important thing that military experts have been able to discover in the new war features introduced in South Africa, is the extraordinary usefulness of the armored train as a military weapon. As the campaign develops there may be seen encounters in which the tide of battle will be turned by means of attacks by parties sheltered behind these moving forts, and those who look into the future with the vivid imagination of a JULES VERNE predict that the battles of the coming years will be fought between armies protected behind huge movable steel shields, bullet-proof, and even bomb-proof, so that the tremendous killing powers of troops armed with modern ordnance will be curtailed by the defensive properties of the protecting steel walls behind which every man fights. In other words, it is believed by those who watch the progress of events in South Africa, that the armor that has heretofore been confined to the fighting forces of the sea will make its appearance on land, the armored train being the forerunner of this new system of warfare.

The importance attached by General BULLER to the armored trains is shown by the fact that he is having made, especially to accompany the advance, a railroad fort modeled after the most approved fashion. The train consists of a powerful engine and three trucks, every vulnerable part of the engine being carefully protected by steel plates that are impenetrable to rifle bullets and the missiles of Maxims and small guns. The only arm that can be used with effect against them is the field gun or heavier ordnance. Against these it is not possible to insure protection, as was shown in the case of the train whose destruction by the Boer artillerymen was the first indication that the Boers meant business when the time stated in their ultimatum to the British had expired.

The three trucks are surrounded by steel plates about six feet in height, and behind these plates the occupants of the trucks are perfectly safe in rifle or rapid-fire fights. A force attacking the armored cars without artillery would be exposed to a fire from rifles and Maxims, and even small cannon without being able to do anything in reply but waste their ammunition trying to get a bullet through the armor of the railroad fort.

There are no doors to the trucks. The men get in by climbing

over the steel sides, and once inside they are boxed in, with no outlet through the sides of the car other than the small vertical slots through which they fire at the attacking force. To "rush" such trains without artillery to mount them beforehand, would be a terribly venturesome undertaking.

The tactics of the armored train crew are simple, and had they been followed out carefully during the recent armored train fights in South Africa, or had the Boers been less well supplied with artillery, the new movable forts would have jumped to first place in the estimation of military men. The armored train must move cautiously forward, the engineer keeping a sharp lookout ahead for obstructions or pitfalls on the track, and the men on the forward truck standing ready with the Maxim gun and their rifles to deal out death to any enemy planted in the path of the train. At the first intimation of the presence of a hostile force a halt should be made, and, if the line in the rear is threatened, the train should be run back until the threatening force is encountered and scattered, and the way clear for another advance. In this maneuver the armored train has all the advantage, for no matter how finely mounted the attacking force may be, it cannot hope to keep pace with the train, and, if it is necessary for the latter to retire, the enemy can always be kept in front with little trouble, while the Maxims and rifles blaze away, and the men on the train can laugh at the efforts of the enemy to retaliate.

These tactics of course presuppose that the lurking contingents that are liable to swoop down on the line, far out of sight of the train crew, to break up and obstruct the track so that on the return of the train it can be ambushed, have been taken care of by the patrols of the force on the train. The disaster that overcame the British on the armored train that was sent out of Estcourt on a reconnoitering expedition, only to be partially derailed and its occupants captured almost to a man by the Boers, was due to overconfidence and lack of the most elementary precautions of war. The British should have known of the presence of the Boers in their rear soon enough to steam back out of danger. Had the British been properly supplied with cavalry, the mobile forces of the Boers could not have scored this success, for their presence would have been discovered and the train saved. "Caution" is the only watchword that is given to the driver of an armored train.

The train is everything, for once that is demolished the men who fill its trucks are worse off than they would have been had the train been left in the shops, for the line is necessarily in the open, while the range is known by the attacking force, who may be hidden in an impregnable position near by, where they can kill off the train defenders at their leisure, or force them to surrender, as at Estcourt.

In the case of the train at Mafeking that clever officer, Colonel BADEN-POWELL, who seems to be the man whose deeds have brought him most prominently to the front of all the ambitious Britishers in South Africa, has managed to keep the line on which he moves his

armored trains free from the enemy by running the steel forts back and forth night and day, so quickly that the enemy never have a chance to get at the rails for purposes of demolition before the train is upon them and they are glad to scuttle to safety. Such damage as they have done he has always quickly repaired, while the guns of the train kept the Boers at a safe distance.

Pursuit of an armored train is obviously an impossibility, so that the capture of or destruction of one of these formidable weapons should be out of the question if ordinary precautions are taken. The train could not, of course, travel swifter than a shell, but if warning of the proximity of artillery is received in time, no cavalry could hope to overtake the crew when they run out of range.

So much attention has been given to the subject of the armored train by the British that the question of even the best color to paint them has been discussed carefully in council. It has been decided that the drab of the soldiers' uniforms is the most suitable, and all military trains now being built in South Africa for the use of the troops there will be painted this color. The lessons learned in the recent war between this country and Spain have been made use of in the designing of this new arm of the service. It will be remembered that a train during the war almost came to grief while journeying along a Cuban railroad, the forward truck being blown up without damage to the trucks that followed. In this case again the presence of the enemy in the vicinity of the line should have been discovered in time, and what might have been a disaster avoided. It is easily seen, therefore, that when the armored trains are accompanied by an adequate scouting force, as will be the case when the forward movement of the British is actually under way, these movable forts will be among the most formidable as well as the most interesting of the new weapons of warfare.—*Washington Post*.

THE CAPTAIN AND HIS HORSES.

The very affection which a captain bears to his squadron makes it difficult for him to lead it. Officers commanding companies may be angry with me for saying it, but it is true that a good captain of cavalry is more closely attached to his command than a good captain of infantry. This is because their training has cost him more trouble. Above all, he loves his horses. This may sound unnatural, but it is human nature. Just as a mother loves that child best which it has cost her the most trouble and care to keep alive and to bring up, so the captain of a squadron gives more affection, and more pains, to the troublesome, unruly horses than to the more easily managed men. Moreover, a horse remains ten years in the squadron, and a man only three, and thus the horses are, as it were, the kernel; so that when a captain speaks of his squadron, he especially means the horses.

During the greater part of the year the care and proper treatment of these animals have absorbed most of his attention, and he

has taken care that "Donna," who is a little fidgety, shall be treated gently by her rider, that too much weight shall not be thrown upon "Tancred's" forehead, that "Belisarius's" feet shall be well looked after, that "Omar's" legs are carefully hand-rubbed, and that "Sultan" is not pulled up so short as to produce a spavin, etc. Some day he is called upon to work his squadron, either in regimental, brigade, or divisional movements, at the maneuvers or in war. He must then, without any thought for his darlings, turn his whole attention to the enemy and the tactical situation of his squadron, and must be prepared to sacrifice the whole of it if necessary, without regard to what may become of Donna, Tancred, Belisarius, Omar or Sultan. What must his feelings be when he has to lead this squadron, upon which he has spent ten years hard work, into the storm of the enemy's bullets! No care for his own life will disturb his choice of the right moment for action, but he cannot help thinking of his darlings. He must expose them to destruction. In spite of himself he doubts, and the doubt obscures his judgment. "How," he says to himself, "if this is not the right moment, I may, perhaps, do more good by demonstrating, by maneuvering, or even by falling back, and thus save to this army all this valuable strength?" Much of the hesitation, much of the indecision of cavalry leaders, who by them have lost the opportune moment, has been due to this thought, and not the instinct of self-preservation, which a German officer never allows to influence him in battle. The officer commanding a squadron must shake off all the infinite number of cares which weigh upon him when he, forming his opinion purely upon tactical considerations, wishes to take advantage of the moment for a charge; he must feel much as my friend B. (who is now dead) felt in action when, after having ordered a squadron to charge the flank of the enemy, he cried rather irreverently: "Now God and the world may do what they like with me! Keep your lances low! Gallop! Charge! Charge! Hurrah!"—*Letters on Cavalry, Prince Kraft zu Hohenlohe-Ingelfingen.*

BOOK NOTICES AND EXCHANGES.

THE STORY OF ARLINGTON. By John Ball Osborne, A. M. Washington, D. C. (Price, 50 cents.)

The author of this work, who is a member of the Columbia Historical Society, is entitled to the gratitude of all officers and soldiers for having preserved to posterity the history of that beautiful and historic spot on the Potomac, which is the last resting place of all that is mortal of so many of the country's gallant dead.

The work is not only a history and description of the great National Cemetery, but contains also a complete list of officers of the army and navy interred there, biographical sketches of heroes of the Civil and Spanish Wars, and notable memorial addresses and poems. It contains also a number of fine illustrations and a map of the cemetery. The work is brought down to the present day, in its description of the disinterment of the bodies of the poor fellows who died at Santiago, and their removal to the soil of the fatherland, to repose with the heroes of the Civil War, at Arlington.

"Thus near the parent turf they rest,
Far from the gory field,
Borne to a Spartan mother's breast
On many a bloody shield.

"The sunshine of their native sky
Smiles sadly on them here,
And kindred eyes and hearts watch by
The hero's sepulcher."

C. D. R.

NOTES ON THE SUPPLY OF AN ARMY DURING ACTIVE OPERATIONS.

By O. Espanet, Sous Intendant Militaire de Seconde Classe. Translated by Captain H. F. Kendall, Eighth Cavalry. Also, *The Art of Supplying Armies in the Field as Exemplified During the Civil War.* By Captain Henry G. Sharpe, Subsistence Department. Hudson-Kimberly Publishing Co., Kansas City, Mo.

THE AUTOMATIC INSTRUCTOR. Adapted for the use of officers in preparing for examination. By Captain G. W. Read, U. S. A. Hudson-Kimberly Publishing Co., Kansas City, Mo.

ORGANIZATION AND EQUIPMENT MADE EASY. By Captain S. T. Banning, First Battalion Royal Munster Fusiliers. Gale & Polden, London, England.

REGIMENTAL RECRUITING. By First Lieutenant F. S. Armstrong, First Cavalry. Hudson-Kimberly Publishing Co., Kansas City, Mo.

TACTICS FOR BEGINNERS. By Captain C. M. De Gruyther, Suffolk Regiment. Gale & Polden, London, England.

JOURNAL OF THE MILITARY SERVICE INSTITUTION (Governor's Island, N. Y. H.). March, May, July, September, November, 1899.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA (Simla, India). January, April, July and October, 1899.

JOURNAL OF THE UNITED STATES ARTILLERY (Fort Monroe, Va.). November, 1898, to December, 1899.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE (Annapolis, Md.). October to December, 1899.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION (Woolwich, England). To December, 1899.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION (22 Charing Cross, S. W. London). 1899.

THE IOWA HISTORICAL RECORD (Iowa City, Iowa). January, April, July and October, 1899.

ALDERSHOT MILITARY SOCIETY (26 Cockspur St., Charing Cross, S. W. London). To date.

THE PENNSYLVANIA MAGAZINE (Philadelphia). April, July and October, 1899.

JOURNAL DES SCIENCES MILITAIRES (30 Rue et Passage Dauphin, Paris). 1899.

THE UNITED SERVICE MAGAZINE (13 Charing Cross, S. W. London). 1899.

THE RIDER AND DRIVER (New York). March, 1899, to January, 1900.

MILITÄR WOCHENBLATT (Berlin). February to December, 1899.

THE MAINE BUGLE (Rockland, Maine). To December, 1899.

REVUE DE CAVALERIE (5 Rue des Beaux Arts, Paris). 1899.

KANSAS STATE HISTORICAL SOCIETY. To November, 1899.

MEDICAL RECORD (43 East 10th St., New York). 1899.

REVUE DE CERCLE MILITAIRE (Paris). 1899.

THE MAITLAND DAILY MERCURY. 1899.

CANADIAN MILITARY INSTITUTE. 1899.

OUR DUMB ANIMALS (Boston). 1899.

NATIONAL INTELLIGENCER.

BALTIMORE LIFE.

THE UNITED STATES CAVALRY.

FIRST CAVALRY—COLONEL ABRAHAM K. ARNOLD.

Adjutant, Capt. R. P. WAINWRIGHT.

Quartermaster, ———

HEADQUARTERS, FORT MEADE, S. D.

Troops—G, H, and I, Fort Meade, S. D.; A, C and L, Fort Robinson, Neb.; B, Fort Russell, Wyo.; K, Fort Niobrara, Neb.; E, Fort Washakie, Wyo.; D, Fort Yates, N. D.; F, Fort Keogh, Mont.; M, Fort Yellowstone, Wyo.

SECOND CAVALRY—COLONEL HENRY E. NOYES.

Adjutant, Capt. F. W. SIBLEY.

Quartermaster, Capt. C. B. HOPPIN.

HEADQUARTERS, SANTA CLARA, CUBA.

Troops—B, E, H and K, Santa Clara, Cuba; A, C, D, F, G and M, Mantanzas, Cuba; I and L, Placetas, Cuba.

THIRD CAVALRY—COLONEL S. B. M. YOUNG, Brig-Gen. U. S. V.

Adjutant, Capt. H. L. RIPLEY.

Quartermaster, Capt. JOHN W. HEARD.

HEADQUARTERS, MANILA, P. I.

Troops—A, C, D, E, F, K, L and M, Manila, P. I.; B, G, H and I, Fort Meyer, Va.

FOURTH CAVALRY—COLONEL CHARLES D. VIELE.

Adjutant, Capt. G. H. G. GALE.

Quartermaster, ———

HEADQUARTERS, MANILA, P. I.

Troops—A, B, C, D, E, F, G, H, I, K, L and M, Manila, P. I.

FIFTH CAVALRY—COLONEL WILLIAM A. RAFFERTY.

Adjutant, ———

Quartermaster, Capt. R. B. BROWN.

HEADQUARTERS, MAYAGUEZ, PORTO RICO.

Troops—D, E, H and L, Mayaguez, Porto Rico; A, Arecibo, Porto Rico; B, Adjuntas, Porto Rico; C, Humacao, Porto Rico; F, San Juan, Porto Rico; G, Aibonito, Porto Rico; I, Ponce, Porto Rico; K, Manati, Porto Rico; M, Cayey, Porto Rico.

SIXTH CAVALRY—COLONEL SAMUEL S. SUMNER.

Adjutant, Capt. M. F. STEELE.

Quartermaster, Capt. W. W. FORSYTH.

HEADQUARTERS, FORT RILEY, KANSAS.

Troops—A, Fort Riley, Kan.; B and K, Fort Leavenworth, Kan.; C, Fort Logan, Colo.; E, Fort Walla Walla, Wash.; F and G, Presidio, San Francisco, Cal.; H, Boise Barracks, Idaho; I and L, Fort Sill, O. T.; D, Fort Reno, O. T.; M, Jefferson Barracks, Mo.

SEVENTH CAVALRY—COLONEL THEODORE A. BALDWIN.

Adjutant, Capt. H. G. SICKEL.

Quartermaster, Capt. L. S. MCCORMICK.

HEADQUARTERS, QUEMADOS, CUBA.

Troops—A, B, D, F, H, K, L and M, Quemados, Cuba; C, E, G and I, Pinar del Rio, Cuba.

EIGHTH CAVALRY—COLONEL WIRT DAVIS.

Adjutant, Capt. R. J. DUFF.

Quartermaster, Capt. W. F. FLYNN.

HEADQUARTERS, PUERTO PRINCIPLE, CUBA.

Troops—E, F, G, H, I, K, L and M, Puerto Principe, Cuba; A, B, C and D, Fort Riley, Kan.

NINTH CAVALRY—COLONEL THOMAS MCGREGOR.

Adjutant, Capt. GEO. W. READ.

Quartermaster, ———

HEADQUARTERS, FORT GRANT, ARIZONA.

Troops—A and B, Fort Grant, Ariz.; C, Fort Douglas, Utah; I and K, Fort DuChesne, Utah; E and G, Fort Apache, Ariz.; F, Fort Huachuca, Ariz.; H, Fort Wingate, N. M.; D, L and M, ordered to Department of Colorado.

TENTH CAVALRY—COLONEL SAMUEL M. WHITSIDE.

Adjutant, Capt. P. E. TRIPPE.

Quartermaster, Capt. C. H. GRIERSON.

HEADQUARTERS, MANZANILLO, CUBA.

Troops—A and C, Manzanillo, Cuba; B, Gibara, Cuba; I, Holguin, Cuba; K, Puerto Padre, Cuba; D, Mayari, Cuba; L and M, Bayamo, Cuba; E, F, G and H, Department of Texas U. S.

CAVALRY OF THE NATIONAL GUARD.

REVISED TO DECEMBER 1, 1899.

ALABAMA.

FIRST SQUADRON OF CAVALRY—MAJOR JAMES T. BECK.

HEADQUARTERS, CAMDEN.

Troop "A," Montgomery, Captain J. H. Crossland; Troop "B," Camden, Captain Charles E. Tait; Troop "C," Selma, Captain V. B. Atkins; Troop "D," Birmingham, Captain J. B. Morson.

CALIFORNIA.

Troop "A," San Francisco, Captain Marius Burnett; Troop "B," Sacramento, Captain Samuel W. Kay; Troop "C," Salinas, Captain Michael J. Burke; Troop "D," Los Angeles, Captain J. D. Fredericks.

COLORADO.

FIRST SQUADRON OF CAVALRY—MAJOR JAMES H. BROWN.

Adjutant and Acting Quartermaster, First Lieutenant A. H. Williams.

Troop "A," Grand Junction, Captain H. Kennedy; Troop "B," Denver, Captain Zeph. Hill; Troop "C," Denver, Captain H. D. Smith.

CONNECTICUT.

First Company Governor's Horse Guards, Hartford, Major Gilbert P. Hurst, Commanding; Second Company Governor's Horse Guards, New Haven, Major Luzerne Luddington, Commanding.

GEORGIA.

Troop "A," Savannah, Captain Henry McAlpin; Troop "B," Dorchester, Captain Willard P. Waite; Troop "C," Guyton, Captain H. R. Daehler; Troop "E," Johnson's Station, Captain Joseph W. Hughes; Troop "G," Darien, Captain Benjamin T. Sinclair; Troop "I," Jesup, Captain Harry W. Whaley; Troop "K," Augusta, Captain Albert J. Twiggs; Troop "L," Atlanta, Captain J. Stapler Dozier; Troop "M," LaGrange, Captain Thomas J. Thornton.

ILLINOIS.

FIRST REGIMENT OF CAVALRY, I. N. G.—COLONEL EDWARD C. YOUNG.

Major, Frank B. Alsip.

Major, Milton J. Foreman.

Adjutant, Captain Alvar L. Bournique.

Quartermaster, Captain George R. Holden.

Surgeon, Major T. J. Robeson.

Troop "A," Chicago, Captain Joseph C. Wilson; Troop "B," Bloomington, Captain Will P. Butler; Troop "C," Chicago, Captain Emil A. Hoeppner; Troop "E," Chicago, Captain Charles H. Alsip; Troop "F," Chicago, Captain Stewart S. Baker; Troop "G," Peoria, Captain Stephen O. Tripp; Troop "H," Macomb, Captain William D. Welch.

IOWA.

Troop "A," Des Moines, Captain Harry H. Polk.

LOUISIANA.

New Orleans, Captain C. Robert Churchill.

MARYLAND.

Troop "A," Pikesville, Captain Jos. W. Shirley.

MASSACHUSETTS.

FIRST BATTALION OF CAVALRY — MAJOR WILLIAM A. PERRINS.

HEADQUARTERS, BOSTON.

Troop "A," Boston, Captain D. A. Young; Troop "D," Boston, Captain John Perrins, Jr.;
Troop "F," Chelmsford, Captain Amos R. Leighton.

MISSISSIPPI.

Troop "A," Crawford, Captain J. J. Powell; Troop "B," Sessumville, Captain A. F. Young.

NEBRASKA.

Troop "A," Seward, Captain William S. Kinney.

NEW HAMPSHIRE.

Troop "A," Peterborough, Captain Charles B. Davis.

NEW JERSEY.

First Troop, Newark, Captain R. Wayne Parker; Second Troop, Red Bank, Captain Edwin Field.

NEW MEXICO.

Troop "A," Hillsborough, Captain Willard S. Hopewell.

NEW YORK.

SQUADRON "A" (Three Troops) — MAJOR OLIVER B. BRIDGMAN.

HEADQUARTERS, NEW YORK.

Troop "C," Brooklyn, Captain Chas. I. De Bevoise.

OHIO.

Troop "A," Cleveland, Captain Frank A. Bunts.

PENNSYLVANIA.

First Troop Philadelphia City Cavalry, Captain John C. Groome; Second Troop Philadelphia City Cavalry, Captain Frank E. Schermerhorn; Sheridan Troop, Tyrone, Captain C. S. W. Jones; Governor's Troop, Harrisburg, Captain Frederick M. Ott.

RHODE ISLAND.

FIRST SQUADRON OF CAVALRY — MAJOR GEORGE S. TINGLEY.

Troop "A," Pawtucket, Captain Charles Allenson; Troop "B," Providence, Captain William A. Maynard.

SOUTH CAROLINA.

Adjutant-General states that reorganization is not yet complete.

SOUTH DAKOTA.

Troop "A," Deadwood, Captain Homer Bostwick.

TEXAS.

Troop "A," Houston, Captain Churchill Towles; Troop "B," Captain O. Paget.

VIRGINIA.

Troop "B," Surry, Captain H. C. Land.

WASHINGTON.

Troop "B," Tacoma, Captain Everett G. Griggs.

WISCONSIN.

Troop "A," Milwaukee, Captain William J. Grant.